AMERICAN BEE JOURNAL

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AMERICAN BEE JOURNAL

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PUBLISHED MONTHLY BY

American Bee Journal

1st Nat'l Bank Bldg. Hamilton, Illinois

IMPORTANT NOTICE

THE SUBSCRIPTION PRICE of this Journal is $1.00 a year, in the United States of America and Mexico; in Canada, $1.10; and in all other countries in the Postal Union, 25 cents a year extra for postage. Sample copy free.

THE WRAPPER-LABEL DATE indicates the end of the month to which your subscription is paid. For instance, "dec15" on your label shows that it is paid to the end of December, 1915.

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Bee-Supplies

LET US FIGURE WITH YOU

We know we can satisfy you on quality. Write for catalog.

C.C.CLEMONS BEE-SUPPLY CO.
Dept. S., Kansas City, Mo.

Wanted

Choice Grades of EXTRACTED HONEY

Send Sample and State Quantity How packed and the lowest price you will take

We are always in the market for **Beeswax,** and pay highest market prices.

Hildreth & Segelken
265-267 Greenwich St., New York, N. Y

MARZ STRAIN OF ITALIANS

A distinctive strain of honey gatherers, with fixed characteristics, the result of 25 years careful breeding.

Untested queens.....$ 1.00
Tested queens 2.00
Breeding queens..... 10.00

Write for circular.

WALKER & MARZIAN APIARIES
Box 373, New Albany, Indiana

SELL YOUR QUEENS IN CANADA

IN the Province of Ontario alone there are 11,000 persons producing honey. A very conservative calculation means that there are 50,000 Queens. If you have Queens to sell to Canadian bee men, say so in The Canadian Horticulturist and Beekeeper, the only bee publication in Canada. It is the official organ of the Ontario and New Brunswick Beekeepers' Associations.

Classified rate 3 cents per word—each single number and sign counting as one word. Cash in advance.

Specimen copy on request.

The Canadian Horticulturist and Beekeeper
Peterboro, Canada

INCREASE THE YIELD OF YOUR FARM

The European war is doubling the demand for American farm products. We can increase our acreage but this will not meet the demand—we must increase our yields per acre We must do better farming, not only in the East and Middle West, but in the great grain raising territory west of the Missouri River.

Everybody knows that by following the Campbell System of Soil Culture, crop yields have been doubled in every State of the Union from New York to California. Why not learn what the principles of the Campbell System are and adopt them ? You can get all this and a thorough agricultural education without leaving home by taking a course in the

Campbell Correspondence School of Soil Culture

You can have your choice of eight courses, Soil Tillage, Soil Improvement, Small Farming, Horticulture, Irrigation, Dry Farming, Farm Engineering and Animal Husbandry, all for a nominal tuition fee, no board to pay, no books to buy, everything furnished, and you can use your spare time while still running your farm or holding your job.

We cannot tell you all about these courses, the faculty and the free bureau of advice in this ad, but we will be glad to send you full information at any time. Write and ask for our free catalog No. 3, and a sample copy of the Scientific Farmer.

Campbell Scientific Soil Culture Company Billings, Montana

We are in the Market

To buy both Comb and Extracted honey. Write us what you have to offer, naming your best prices delivered. Every time an interesting price is named us, we buy and remit the day shipment arrives.

SHIP US YOUR OLD COMB

We render it into wax, and pay the market prices.

THE FRED W. MUTH COMPANY

204 WALNUT STREET "The Busy Bee Men" CINCINNATI, OHIO

TEXAS QUEENS

Circular free

Italians, the pure three-banded stock from imported mothers. Carniolans, the pure dark grey stock from Carniola. Queens will be ready to ship early in March. No disease. Prices, 75 cents each. $8.00 per dozen.

Grant Anderson, San Benito, Tex.

LEGHORN BREEDERS!

Send in your subscription to **The Leghorn Journal** and keep posted on the progress of the Leghorn industry; as it is devoted exclusively to the different Leghorn fowls. Subscription price 50c per year. Special offer—Send us 10c and the names of five of your neighbors interested in Leghorns, and we will send you The Leghorn Journal for three months.

THE LEGHORN JOURNAL
Appomattox, Virginia

American Bee Journal

Bingham Bee Smokers and Uncapping Knives

Have been on the market nearly 40 years, and are the standard in this and many foreign countries. Insist on the genuine improved articles from your dealer or direct from manufacturers.

			Postage extra	ship. wt.	Price
Smoke Engine,	4	inch,	28 oz.		$1.25
Doctor	3½	"	26 oz.		.85
Conqueror	3	"	23 oz.		.75
Little Wonder	2½	"	16 oz.		.50
Smoke Engine or Doctor in copper					50c extra
Uncapping Knives, improved Cold Handle					
Stan'd Length	8½	"	20 oz.		.75
Extra long	10	"	24 oz.		.85
Steam Heated 3 feet tubing			36 oz.		2.50

Friction-top pails, 5 lb., size per 100, $4.50; 10-lb. size per 100, $6.25; 60-lb. cans two in a case, 10-case lots, 60c; 25-case lots, 59c; 50-case lots, 58c per case, f. o. b. Chicago. State quantity wanted and get our shipping case prices.

Woodman's double-wall Protection Hives, single-wall hives, Good enough Brand Sections, shipping cases, foundation, and all supplies. Send us a list of the goods wanted and let us figure on your 1916 requirements.

A. G. WOODMAN CO., Grand Rapids, Mich.

QUEENS—Golden and Leather-colored

We are in position to fill your orders for queens and bees from date of this "Journal" until October 1, 1915, at following prices:

Prices of one and over	1	6	12
Virgins	$ .50	$2 75	$ 5 00
Untested	.85	4.50	8.00
Select untested	1.00	5.00	9.00
Warranted	1.10	5.50	9.50
Tested	1.50	7 50	13.50
Select tested	1.75	9.00	15.00
Tested breeding	3.00		
Select tested breeding	5.00		
Ex. select test. breeding	7.50		

1 frame nuclei without queen	$1.50
2 frame nuclei without queen	2.75
3 frame nuclei without queen	3.50
Colony 8-frame hive without queen	7.50
Colony 10-frame Danz, without queen	9.50
Colony 10-frame hive without queen	9.50

When queens are wanted with nuclei and colonies, add queens at prices as above for queens.

Bees by Pound F. O. B. Penn., Miss.

½-pound package, wire cage	$1.00
1-pound package, wire cage	1.50
2-pound package, wire cage	2.00

No queen supplied at these prices. Make selection and add to above prices.

All bees and queens shipped from our yards at Penn, Miss. We have no disease, nor do we know of any diseased bees in this State. Our queens are bred from highly selected stock of uniformly marked bees; for gentleness and working qualities they are unsurpassed; they are world-beaters as honey-gatherers. We consider these queens the equal of any on the market, and years of favorable reports substantiate this claim. In ordering you have the choice of selecting three-banders or goldens. Prompt attention given to all orders and inquiries. Read The A. I. Root Company's endorsement below.

MEDINA, OHIO, February 6, 1914.

THE PENN CO., Penn, Miss.

Gentlemen:—Replying to yours of February 3, we would state that we have bought a large number of queens of you. We have found them uniformly marked, and of a good stock; in fact, they are first-class in every respect. Another thing, we have always found that you make prompt deliveries, or give us notice promptly when such deliveries could not be made.

THE A. I. ROOT COMPANY,
Per E. R. Root, Vice-president.

Our record last year, about 10,000 queens, and shipments to all important foreign countries; every State in United States and Canada, and only two complaints, which we readily made good. Try us. We are sure to please you.

Our QUEENS all around the world. The sun never sets on a Penn Co.'s queen.

THE PENN COMPANY, Penn, Lowndes County, Mississippi

Representatives of The A. I. Root Company, and Queen Specialists.

Honey Jars

No. 25 screw cap jars, 1-lb., $4.60 gross. Shipping cases, cartons and cans. Amber honey, 7½ cts. a lb. Light amber 8½ cts. a lb. on two 60-lb. can lots. Catalog of supplies free. I. J. STRINGHAM,

105 Park Place, N. Y.

APIARIES: Glen Cove, L. I.

OUR VERY BEST IS THE VERY BEST

BEE SUPPLIES

Best Sections, Best Shipping Cases

Best of all Supplies

Best prices you will get for your honey when put up in our sections and shipping cases. "LOTZ" sections and shipping cases have stood the test. Why? Because they are perfect in workmanship, quality and material. Buy LOTZ goods when you want the BEST. Our 1915 catalog ready now. Send your name and get one.

H. S. DUBY & SON, St. Anne, Ill., carry a full line of our goods.

AUG. LOTZ CO. BOYD, WIS.

HONEY AND QUEENS

$16.00 Gets 32 gallon barrel of Chinquapin honey.
$20.00 Gets same amount either poplar or black tupelo gum honey.
$19.20 Gets carriers of eight 24 lb. cases; fancy, 12½ oz., and better light amber comb honey.
$18.00 Gets same amount and quality, 11 ounce sections.
$16.50 Same amount, 10 ounces, lighter weight, 10c per pound.
$ 5.00 Tested grey Caucasian queens; best stock $1.50 each.

J. J. WILDER, Cordele, Georgia

PONTIAC ENGRAVING CO.
ARTISTS
ENGRAVERS-ELECTROTYPERS
542-550 S. DEARBORN ST.
PONTIAC BLDG. CHICAGO.

$ 2 $ A MONTH

buys a Standard Typewriter your choice. Late Style Visibles Back Spacer, Tabulator. Two-color Ribbon. Every modern operating convenience. My prices lower than other cash prices. Perfect Machines. Fully guaranteed. Ask for Special. Five Days Free Trial Offer. **H. A. SMITH**
230-231 N. 5th Ave., Chicago, Illinois

WESTERN BEE-KEEPERS can save honey and get the best goods obtainable, especially made to meet Western condition. Send for new catalog and special price list to
Colorado Honey-Producers' Association
Denver, Colorado

ITALIAN QUEENS **NORTHERN BRED**

The cold season makes one think where we are going to get the hardy, northern-bred queens? Untested, $1.00; select tested, $1.50.

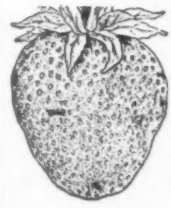
E. E. MOTT, GLENWOOD, MICH.

Help Advertise Honey

—By putting—

EAT HONEY

Stickers on all letters, packages, shipments, etc. Printed in bright red, already gummed. Price, postpaid, 500, 20c; 1000, 30c.



4 MONTHS FOR 10c
Trial Subscription To Fruit and Garden Paper

Tells about planting, pruning, spraying and selling fruit and garden truck.

Ask Us Your Hard Questions.

We conduct this department for the special benefit of our subscribers. Experts answer all questions by mail and through the columns of the magazine.

Fruitman and Gardener, 1111 Main St. Mt. Vernon, Ia.

Box 102

American Bee Journal

PROTECT YOUR BEES AGAINST FOULBROOD

By using "falcon" queens

One of the prominent beekeepers of New York State writes:

"The queens received from you this season have been perfectly satisfactory. For cleaning up foulbrood they cannot be beat. We could not ask for any better queens, and I have not heard any fault found from parties I have sold to."

Can you afford to run the chance of letting foulbrood invade your apiary when **"Falcon"** Italian queens are no more expensive than the ordinary blacks and hybrids which oftentimes cause a catastrophe in an apiary by being so susceptible to foulbrood.

PRICES OF "FALCON" QUEENS—THREE-BANDED ITALIANS, GOLDEN ITALIAN AND CARNIOLANS

After July 1	1	6	12	After July 1	1	6	12
Untested	$ .90	$5.00	$ 9.00	Tested	$1.50	$ 8.00	$15.00
Select untested	1.00	5.50	10.00	Select tested	2.00	10.00	18.00

SAFE ARRIVAL AND SATISFACTION GUARANTEED **DEALERS EVERYWHERE**

RED CATALOG, Postpaid - "Simplifed Beekeeping," Postpaid

W. T. Falconer Mfg. Co., Falconer, New York

Where the good bee-hives come from

GOLDEN ITALIAN QUEENS

Mr. Beekeeper, do you want the best queens that money can buy? If so, try this strain of Goldens that for fifteen years has been a leader. All queens reared from superior Golden mothers and mated with select Golden drones; are large, vigorous and prolific; the bees gentle and hustlers, and are noted throughout the United States as a disease-resisting strain. Mated from strong nuclei, three to five full Langstroth frames. No disease. Safe arrival (U. S. and Can.), purity of mating and satisfaction guaranteed. Write for descriptive circular.

PRICES OF QUEENS

	Nov. 1 to May 1			May 1 to June 1			June 1 to July 1			July 1 to Nov. 1		
	1	6	12	1	6	12	1	6	12	1	6	12
Untested	$1.50	$ 7.50	$13.50	$1.25	$ 6.50	$11.50	$1.00	$ 5.00	$ 9.00	$ .75	$ 4.00	$ 7.50
Select untested	2.00	8.50	15.00	1.50	7.50	13.50	1.25	6.50	12.00	1.00	5.00	9.00
Tested	2.50	13.50	25.00	2.00	10.50	18.50	1.75	9.00	17.00	1.50	8.00	15.00
Select tested	3.00	16.50	30.00	2.75	15.00	27.00	2.50	13.50	25.00	2.00	11.00	18.00

Breeders, $5.00 to $25.

BEN G. DAVIS, Spring Hill, Tennessee

Please mention Am. Bee Journal when writing.

Quality Hill Queens

"The Queens You'll Eventually Buy"

Quality Hill Queens are of a famous strain, greatly improved. All cells are built in 10-frame colonies, brimful of bees, and during a continuous honey flow. For hardiness, gentleness and honey gathering qualities, they are better than most. Four frame nuclei used for mating. Many report them very resistent to European Foulbrood. No disease. Italians.

Our Guarantee—All queens will reach you alive, in good condition, purely mated, and will give satisfaction. Queens which prove to be injured in the mails will be replaced if returned. Reference, Plainfield, Ill., State Bank.

	1	6	12		1	6	12
Untested	$ .80	$4.00	$7.50	Tested	$1.50	8.00	$15.00
Select unested	1.00	5.00	9.00	Select tested	2.50	10.00	18.00

Breeders $4.00 up

K. E. HAWKINS, Plainfield, Illinois

BARNES' Foot-Power Machinery

Read what J. I. Parent of Chariton, N. Y., says: "We cut with one of your Combined Machines last winter 50 chaff hives with 7-in. cap, 100 honey-racks, 500 frames, and a great deal of other work. This winter we have a double amount of hives, etc. to make with this saw. It will do all you say of it." Catalog & price-list free

W. F. & JOHN BARNES
995 Ruby St., ROCKFORD, ILLINOIS.

SHIPPING CASES

We have them and sell at the old price. Send us a list of what you want or send for catalog of the best and cheapest bee supplies of all kinds.

H. S. DUBY & SON, St. Anne, Ill.

American Bee Journal

HONEY AND BEESWAX

CHICAGO, Sept. 15.—Comb honey has been arriving freely of late and prices are really weaker owing to the absence of free buying on the part of retailers who are holding off for cooler weather. However, some of the receivers feel they must sell very soon after it arrives, and consequently selling at lower prices than are quoted herein. The market on A No. 1 to fancy grades 17@18c per pound with sales chiefly at 17c; No. 1 at 16c per pound, with amber grades ranging from 13@15c per pound. That which has not been built with separators and is undesirable because of mixed colors and pollen scattered through the comb sells at from 9@12c per pound.

Extracted is also arriving freely with very little demand. Prices ranging for white from 7@9c per pound, according to kind, package and quality with the ambers from 5@7c per pound. Beeswax is dull at 28@30c per pound, with stocks accumulating.

R. A. BURNETT & CO.

CINCINNATI, Sept. 13.—The demand for honey is better than it was some time ago. We are selling fancy and No. 1 comb honey for $3.25 to $3.75 per case. Amber comb honey is hard to sell at any price, and we discourage the shipments of this in our market. For the best white extracted honey in crates of two 60 pound cans we are getting from 7½@9c a pound, for amber honey in barrels 4½@6½c, according to the quantity and quality purchased. For choice bright yellow beeswax that is free from dirt we are paying 28c a pound delivered here.

THE FRED W. MUTH CO.

NEW YORK, Sept. 18.—The new crop of comb honey is rather slow in arriving; still there is not a very heavy demand as yet, probably due to the intense hot weather of late. Prices are ruling at from 15@16c per pound for fancy white; 13@14c per pound for No. 1; 10@12c per pound for off grades. The market on extracted is quiet and inactive; there seems to be an abundant supply of clover and linden as well as California sage and alfalfa. West Indian honey is arriving right along with prices showing a downward tendency.

Beeswax is coming in steadily at from 30@31c per pound.

HILDRETH & SEGELKEN.

DENVER, Sept. 18.—The first of the new crop of comb honey is now coming in and sells locally at the following prices per case of 24 sections: Fancy, $3.60; No. 1, $3.38, and No. 2, $3.15. Crop promises to be light. Local prices on extracted unchanged. White, 8½@8¾c; light amber, 8@8¼c; amber, 7@8c. We pay 25c cash and 27c per pound in trade for clean yellow beeswax delivered here.

THE COLO. HONEY-PRODUCERS' ASS'N.
Frank Rauchfuss, *Mgr.*

KANSAS CITY, MO., Sept. 15.—Not much change to report on our honey market. New crop of extracted is beginning to arrive. The demand is light. The receipts of comb are liberal and the demand is fair. We quote as follows: No. 1 white comb honey, 24 section cases, $3.25 to $3.35; No. 2, $2.75 to $3.00. No. 1 amber, 3.00 to $3.25; No. 2, $2.50 to $2.75. Extracted, white, per pound, 7@7½c. No. 2 amber, 5½@7c. Beeswax, 25@28c.

C. C. CLEMONS PRODUCE COMPANY.

LOS ANGELES, Sept. 21.—The California honey market is as follows: Water-white sage, 6c; white sage, 5½c; light amber sage, 4c. Extracted honey is in good supply. Comb honey stocks are fairly good. The market is about $2.75 per case for No. 1 white. Beeswax market is 25c.

HAMILTON & MENDERSON.

INDIANAPOLIS, Sept. 17.—Shipments of comb honey are arriving quite freely, and selling as fast as it arrives. Extracted honey has been coming in from all directions, and the demand for good quality is quite brisk. We are selling white comb at $3.50 to $4.00 per case, the quality being excellent. Prices on extracted range from 9@11c.

We are allowing 28c cash or 30c in trade for good average beeswax delivered here.

WALTER S. POUDER

Attractive Prices
ON TIN HONEY CONTAINERS

Just now there is a heavy demand for tin honey containers in Illinois and adjoining territory. A heavy fall honey flow is on. If you need cans or pails write us. We have secured cans at such figures that we can surely save you money.

Write us your ***requirements*** and we will give you our best prices

DADANT & SONS

Hamilton, Illinois

Grading Rules of the Colorado Honey-Producers' Association, Denver, Colo., Adopted Feb. 6, 1915.

(All honey sold through the Colorado Honey-Producers' Association must be graded by these rules.)

COMB HONEY.

FANCY.—Sections to be well filled, combs firmly attached on all sides and evenly capped, except the outside row next to the wood. Honey, comb and cappings white, or slightly off color. Combs not projecting beyond the wood, sections to be well cleaned. No section in this grade to weigh less than 12½ ounces net or 13½ ounces gross. The top of each section in this grade must be stamped, "Net weight not less than 12½ ounces."

The front sections in each case must be of uniform color and finish, and shall be a true representation of the contents of the case.

No. 1.—Sections to be well filled, combs firmly attached, not projecting beyond the wood and entirely capped, except the outside row next to the wood. Honey, comb and cappings from white to light amber in color. Sections to be cleaned. No section in this grade to weigh less than 11 ounces net or 12 ounces gross. The top of each section in this grade must be stamped, "Net weight not less than 11 ounces." The front sections in each case must be of uniform color and finish, and shall be a true representation of the contents of the case.

No. 2.—This grade is composed of sections that are entirely capped except row next to the wood, weighing not less than 10 ounces net or 11 ounces gross. Also of such sections that weigh 11 ounces net or 12 ounces gross, or more, and have not more than 50 uncapped cells altogether, which must be filled with honey. Honey, comb and cappings from white to amber in color. Sections to be well cleaned. The top of each section in this grade must be stamped, "Net weight not less than 10 ounces." The front sections in each case must be of uniform color and finish, and shall be a true representation of the contents of the case.

COMB HONEY THAT IS NOT PERMITTED IN SHIPPING GRADES.

Honey packed in second hand cases.
Honey in badly stained or mildewed sections.
Honey showing signs of granulation.
Leaking, injured or patched up sections.
Sections containing honey-dew.
Sections with more than 50 uncapped cells or a less number of empty cells.
Sections weighing less than the minimum weight.
All of such honey should be disposed of in the home market.

EXTRACTED HONEY

Must be thoroughly ripened, weighing not less than 12 pounds per gallon. It must be well strained and packed in new cans, 60 pounds shall be packed in each 5 gallon can, and the top of each 5-gallon can shall be stamped or labeled, "Net weight not less than 60 pounds."

Extracted honey is classed as white, light amber and amber, the letters "W," "L. A.," "A." should be used in designating color, and these letters should be stamped on top of each can. Extracted honey for shipping must be packed in new, substantial cases of proper size.

STRAINED HONEY

Must be well ripened, weighing not less than 12 pounds per gallon. It must be well strained, and if packed in 5-gallon cans each can shall contain 60 pounds. The top of each 5-gallon can shall be stamped or labeled "Net weight not less than 60 pounds." Bright clean cans that previously contained honey may be used for strained honey.

HONEY NOT PERMITTED IN SHIPPING GRADES.

Extracted honey packed in second-hand cans.
Unripe or fermenting honey, weighing less than 12 pounds per gallon.
Honey contaminated by excessive use of smoke.
Honey not properly strained.
Honey contaminated by honey-dew.

MORE MONEY FOR YOUR HONEY

WHEN PACKED IN

LEWIS SUPERB SHIPPING CASES

After you have harvested a nice lot of comb honey do not make a serious mistake by putting it up ready for the market in a cheap appearing case such as a home-made one or that turned out by a local planing mill. The best and most economical (taking the sale of the honey into consideration) case must be turned out with the same careful workmanship and with the same selection of proper material as goes into the making of first-class bee hives and honey sections such as we manufacture.

It is an acknowledged fact that comb honey put up in attractive Lewis Shipping Cases will bring from one to two cents per pound more than the same honey put up in poor cases. Do not cheapen your product by inferior cases. You can afford the best—remember your shipping cases are the show windows for your goods. Your honey will bring more money if well displayed.

INSIST ON THE LEWIS MAKE

Lewis Shipping Cases are cut accurately out of clear, sound basswood lumber. All of these cases are neatly packed, and include the proper size nails for nailing them up.

For sale by us and the following Lewis distributers:

CALIFORNIA	W. A. Trickey	Bishop
COLORADO	Colorado Honey Producers' Association	Denver
COLORADO	Grand Junction Fruit Growers' Association	Grand Junction
COLORADO	Delta County Fruit Growers' Association	Delta
COLORADO	Producers' Association	De Beque
COLORADO	A. S. Parson	Rocky Ford
COLORADO	Coffin & Foster	Rifle
COLORADO	J. Roscoe Miller	Montrose
GEORGIA	J. J. Wilder	Cordele
IDAHO	City Grain & Poultry Co	Nampa
ILLINOIS	Dadant & Sons	Hamilton
IOWA	Louis Hanssen's Sons	Davenport
IOWA	Adam A. Clarke	Le Mars
IOWA	H. J. Pfiffner	Emmetsburg
MICHIGAN	A. G. Woodman Co	Grand Rapids
NEW MEXICO	C. F. Reynolds	Artesia
NEW MEXICO	H. H. Brown	La Plata
NEVADA	H. Trickey	Reno
OHIO	Fred W. Muth Co	Cincinnati
OREGON	Chas. H. Lilly Co	Portland
TENNESSEE	Otto Schwill & Co	Memphis
TEXAS	Southwestern Bee Company	San Antonio
UTAH	Foulger & Sons	Ogden
WASHINGTON	Chas. H. Lilly Co	Seattle
PORTO RICO	Fritze, Lundt & Co. S	Ponce
ENGLAND	E. H. Taylor	Welwyn

G. B. LEWIS COMPANY

Sole Manufacturers

Watertown, - Wisconsin

AMERICAN BEE JOURNAL

(Entered as second-class matter at the Post-office at Hamilton, Ill., under Act of March 3, 1879.)

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C. P. DADANT, Editor.
DR. C. C. MILLER, Associate Editor.

HAMILTON, ILL., OCTOBER, 1915 **Vol. LV.—No. 10**

EDITORIAL COMMENTS

Wilmon Newell to Florida

After several years as State Entomologist for Texas, Wilmon Newell, well known to most of our readers, has accepted the position of State Plant Commissioner for Florida.

This means that Mr. Newell is giving up for the present his work with the bees to become plant commissioner. We feel very sure, however, that he will not, in any case, lose his interest in bees and beekeeping. Without a doubt he will do all he can in the interests of beekeeping at his new location.

Recovery of J. E. Pleasants

We are happy to state that Mr. Pleasants has recovered from the accident mentioned on page 297 of the September number. A short contribution from him will be found in this number.

Our Front Cover Picture

On our front cover for this number we give a partial view of the 240 colony home apiary of Mr. E. L. Hofman, of Janesville, Minn. He is, no doubt, the largest beekeeper in Minnesota. We hope to have an article from him soon with views of his other apiaries.

Although not of rugged health, Mr. Hofman does nearly all the work on his several hundred colonies himself.

A National Honey Day

Mr. Geo. W. Williams, former secretary of the National Beekeepers' Association and editor of the "Booster," is an enthusiast and believes in boosting the sale of honey. He suggests that Thanksgiving day be made the National Honey Day. In order to succeed in doing this successfully, it is necessary that all beekeepers unite in pushing this date for that purpose. What do our readers say?

We understand that this matter will be taken up by all the bee magazines of the United States, in order to make the day popular. There has never been any difficulty in making a certain day "Peach day" in cities where the dealers united in the matter. Thanksgiving is already "Turkey day," and there is no reason why we cannot make a success of it as "Honey day" if we start the ball rolling and keep at it.

Flowers and Bugs

We acknowledge receipt from our able correspondent, Mr. John H. Lovell, of Waldoboro, Maine, of a bulletin entitled "The Origin of Anthophily Among the Coleoptera." Our readers will remember the interesting article on this subject, entitled "Beetles and Beekeeping," page 167 of our May number, by the same writer. Mr. Lovell is an expert in entomology and botany, and his writings on the connection of these two sciences are of great value. It is interesting to learn that, although many coleoptera feed upon flowers, they are "of little significance as pollinators of flowers." They do not compare with the bees as pollen carriers and agents of plant fertilization.

Beekeeping in Wisconsin

This is the title of a thesis submitted for the degree of Master of Science at the University of Wisconsin by L. V. France, who has had extensive apiarian practice with his father, N. E. France, at Platteville. The advance sheets of this interesting work have been submitted to us. The author is now employed in apiary work, at the College of Agriculture of Minnesota, near St. Paul, in connection with Prof. F. Jager, instructor and experimenter in charge.

This thesis gives valuable information concerning the past and present status of beekeeping in Wisconsin. A number of tables are appended, showing the principal beekeeping regions own

L. V. FRANCE
Assistant in Apiculture at Minnesota

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occupied, the flora with approximate dates of blooming of the different plants, the methods of wintering with dates concerning the confinement of colonies in cellar, data of winter losses and spring losses, apiary management, and a very exhaustive review of disease conditions.

Possibilities of cooperation among beekeepers are shown and emphasized, queen-rearing advice is given, and a number of letters produced showing the sentiment of beekeepers throughout Wisconsin as to the progress achieved, the usefulness of hive inspection, the possibility of help by the State University and the question of profitableness of beekeeping in Wisconsin.

From the maps contained in the work we see that some 18 or 19 counties on the north side of the State are still practically vacant as far as bees are concerned, so that there is plenty of room for more beekeepers.

From the statements made we glean confirmation of several facts already advanced by noted apiarists; that basswood is an irregular honey-producing tree, yielding nectar only about two years out of five; that aster honey often causes winter losses; that it is inadvisable, as a rule, to preserve queens over two years old; that stimulative feeding is profitable in locations where a positive lull exists between the blooming of early spring flowers, etc.

According to the reports given in this booklet, about 86 percent of the progressive beekeepers in Wisconsin winter their bees in the cellar. The loss of bees throughout the State from wintering and spring dwindling is given at 15 percent for the past five years. It is shown that the most of this loss, amounting to about $100,000 could be avoided by proper methods.

The United States census honey-crop report for Wisconsin in 1910 is quoted, the amount of honey being approximately 3,754,000 pounds; but this is exclusive of the products harvested by beekeepers located within the limits of cities, no attempt having been made by the Census Bureau to secure this.

From the above, the reader may judge of the interest to be produced by Mr. France's work. The University of Minnesota made a wise selection in employing him for apiary work.

Purity of Italian Bees in Italy

In the May number of the Bee Journal, page 162, in giving an account of our visit to San Remo, Italy, on the Riviera, I stated that the bees on the south side of the mountains, in Liguria, are not pure Italians. But I was unable to establish the line where the division between the Italian and the common bee is fixed. Mr. Piana, the young apiarist whose portrait is given in our August number under the uniform of a lieutenant, was kind enough to make enquiries of noted apiarists in Liguria, to secure for me the desired information, and sent to me a letter from a honey producer of the Ligurian Alps, Mr. V. Oreggia. This not being sufficiently explicit, I took the pains to write this gentleman for further enquiry.

The reader will perhaps wonder why I did not ascertain this interesting question while in Italy. The trouble is that when we travel we can take only a very narrow path. Besides, the line separating the two different races of bees must be over mountains well-nigh inaccessible to them. Such is the case between Switzerland proper and Italian Switzerland, for north of the Swiss Alps the bees are black, while south of them are found as pretty Italians as anywhere in Italy. The reply of Mr. Oreggia confirms my expectations. On the west end of the south slope of the Ligurian Alps, which continue the chain of the Apennines, the bees are of the common race. North of this chain, in Piedmont, about Limone, Cuneo, Mondovi, Alba and Turin, the bees are of the yellow race. But on the east end of Liguria, among mountains that end precipitously at the Mediterranean, the bees become yellower and yellower until the pure race is found at Genoa or east of there. I cannot do better than give a full translation of the letter received upon this subject from a man who is acquainted with both sides of the Ligurian Alps, and owns apiaries there from which he produces large crops of honey.

TAVOLE, PORTO MAURIZIO, ITALY, July 16, 1915.

Dear Mr Dadant:—Owing to the war, your letter of May 20 was received after a delay, with the two last numbers of your splendid Journal. I thank you. In a conversation which I had with Engineer Capponi, he had already mentioned your visit and the publication of your trip, which had pleased him greatly.

Concerning what you desire to know, I believe I can furnish you the most positive information, for I keep bees and have often occasion to do apiary work in the zone in question.

The chain of mountains which separates Piedmont from Liguria forms also the division between the two races of bees, but only up to a certain point, for, as I have had the pleasure of mentioning it to Mr. Piana, the yellow race is also found on the Ligurian slope, and from Genoa towards the center of Italy the race is always pure. Traveling from time to time through that country I will make it a point to ascertain the precise spot where there is a mixture of the two races and will advise you of it. I have apiaries situated on both slopes of the mountain chain, and particularly at Limone (on the Piedmont slope) and at Vievole (on the Ligurian slope). These towns are at an altitude of 1000 meters, 3300 feet, and at present one can go from one to the other by train, through a tunnel, in 20 minutes, a distance of 9 kilometers or thereabout. Well, in Limone, the race is pure Italian, and it is also true of all other localities in Piedmont. This may be ascertained in hundreds of different localities, and among them are the towns which you mention.

While enquiring of resident farmers with the intention of locating apiaries and inspecting the bees, I have observed hundreds of colonies and have never been able to find a single common bee in Piedmont. The people of that province know no other race. Being at Limone a few years ago, my opinion was asked concerning the question whether the bees on the south slope were cross. I replied in the affirmative, and explained that the reason of it was that the bees on the Ligurian slope were of the common race and the difference in behavior was due to the difference in race.

VITTORIO OREGGIA.

It may interest the reader to learn that Mr. Oreggia is the inventor of a circular honey section, which he has called "lune di miele" (honey moon), which has brought him a number of premiums and notices through his exhibits at different expositions. We will probably publish a picture of them.

A PART OF THE LIGURIAN ALPS THAT SEPARATE THE COMMON BEES FROM THE ITALIAN IN LIGURIA

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MISCELLANEOUS NEWS ITEMS

Conditions With M. H. Mendelson.—In a recent letter from Mr. M. H. Mendleson, of California, we learned that he had the misfortune of getting a bee into one of his ears, causing much suffering and the loss of hearing in that ear, with partial deafness in the other. Another from him since states that he has partially, though not fully recovered.

In both his letters Mr. Mendleson gives reports on conditions which we believe our subscribers should have, and from which we quote as follows:

This has been a great year, and a very regrettable disappointment to us. The combination of buyers has forced prices downward, making it almost impossible to make anything from the business. Honey is not keeping pace with the price of sugar, owing to the lack of organization among the honey producers, and it will be worse if bee men do not organize and get informed. Buyers make their brags that the bee men will have to come to their price. Organization would force them to give us living prices.

I see no real hope for us now unless we get to business. The producers will be forced to organize and sell their own honey. It is so with the general producer. We have only had from a one-fifth to a one-fourth crop of honey. Good comb honey will be at a premium. In fact, taking one year with another comb honey does not pay. Too many poor years, and too many unfinished sections to carry over. The seasons are not as they used to be.

Buyers have now bought up the white honey of southern California. Free tariff on honey has flooded our markets with the darker grades of honey from the Islands worse than we are aware of, and the dark grades cannot be sold here. Of course, the war does affect prices partly, but not sufficiently for the ruining prices offered.

Beekeepers must organize if they wish to keep into the business. We cannot blame the buyer to buy cheap; *that is business*. The profit *is in the buying*. The buyer could also make a profit if we were organized, and have proper grading rules. It is a mistake to have white and water-white. It should be only white, as the water-white is but a small fraction of the amount gathered, and many times not any. M. H. MENDLESON.

Piru, Calif.

Ontario Dark Honey Crop Report.—The Crop Report Committee of the Ontario Beekeepers' Association met on Thursday, Sept. 9, to consider the crop of dark honey. It was found that 105 members had reported 116,400 pounds from 5807 colonies; being an average of 20 pounds to the colony. This is about double of last year's average.

The local demand for white honey is exceedingly good, as many people are buying honey to put away instead of canned fruit, and the prices recommended by the committee are being realized.

Western New York Field Meet.—The basket picnic and field meet of the Western New York Honey Producers' Association, which was held at the DeMuth apiary in Pembroke, N. Y., was as large a gathering of beekeepers as was ever witnessed in this end of the State. The forepart of the day was a matter of brushing up acquaintances and forming new ones. Next a little demonstration of finding queens and noting differences. Some favor the darker strains of Italians while some favor the lighter or golden strains. A few supers of honey were removed from the hives by Messrs. Vollmer & DeMuth, using their automatic bee brush for clearing the combs of bees. This honey was taken to the honey house where many expressed their way of uncapping; many preferred the hot knife, some the cold, some up stroke and some down stroke. It seems to be more a matter of personal practice.

Vice-President J. Roy Lincoln told of his experience in treating European foulbrood and curing same. Mr. G. C. Greiner, the veteran beekeeper whom if any one ever met would rarely soon forget, told of his campaign with the disease four years ago, of course coming out victorious in the fight. It was repeatedly brought out that a vigorous strain of Italians were necessary to clean up the disease.

Mr. J. T. Rasch told of his method of rearing queens and building up nuclei, which he has practiced for several years.

Dr. H. Smoyer exhibited some fine photographs of apiaries in Porto Rico, which by their appearances showed that there is some honey yield in that locality.

Mr. L. F. Wahl told how he packs honey for the trade in quarter pint milk bottles which keeps him busy in the winter months when he cannot rear queens, which he certainly does in the summer.

Several members were added to the association. Special credit should be given Mr. and Mrs. DeMuth for the lunch and refreshments that they cheerfully served to those who forgot to bring their lunch or found it inconvenient to do so. The association plans to make this summer meeting an annual affair, as it certainly is a day well spent.

Northern Illinois and Southern Wisconsin Meeting.—The annual meeting of the Northern Illinois and Southern Wisconsin Beekeepers' Association will be held in the Court House in Freeport, Ill., on Tuesday, Oct. 19, 1915. All those interested in bees are invited to attend. B. KENNEDY, *Sec.*

Rockford, Ill.

Idaho-Oregon Meeting.—The Idaho-Oregon Honey Producers' Association held their annual field day at the Gottfried Lohrli home place in Parma Idaho, on July 8:

Guy Graham, of Boise, State Horticulturist and Bee Inspector, spoke of the State appropriation of $3000 which was secured at the last meeting of the legislature. The department has been using it for the purpose of stamping out foulbrood from among the bees. Two thousand dollars was spent the first year and $1000 more will be spent this year. This will be of special benefit to the small bee raisers, as the larger

This photograph should have appeared in connection with Mr. T. Rayment's article in our September issue

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bee men are pretty well able to handle this disease and keep it out of their colonies. The smaller raisers have been the worst sufferers and will be most benefited.

Others who spoke briefly on various topics of interest were G. Fredericks, bee inspector of the Kuna district; Mr. McKibben, of Star, who has been appointed for some special inspection work; E. G. Johnson, of Payette, L. C. McCarthy, leading bee man in Nampa; Howard Malad, inspector from Oregon, who spoke of the differences between the bee laws of Oregon and Idaho, and G. G. Yoder, of Star, who is the oldest, most successful bee man in the country, having been for 40 years in the industry. In addition to these there was C. E. Dibble, of Washau, president of the Idaho-Oregon Association, who acted as chairman of the meeting. He extended a most hearty word of thanks to Mr. and Mrs. Lohrli for the offer of their home and grounds for the meeting, and for doing so much for the entertainment of their guests.

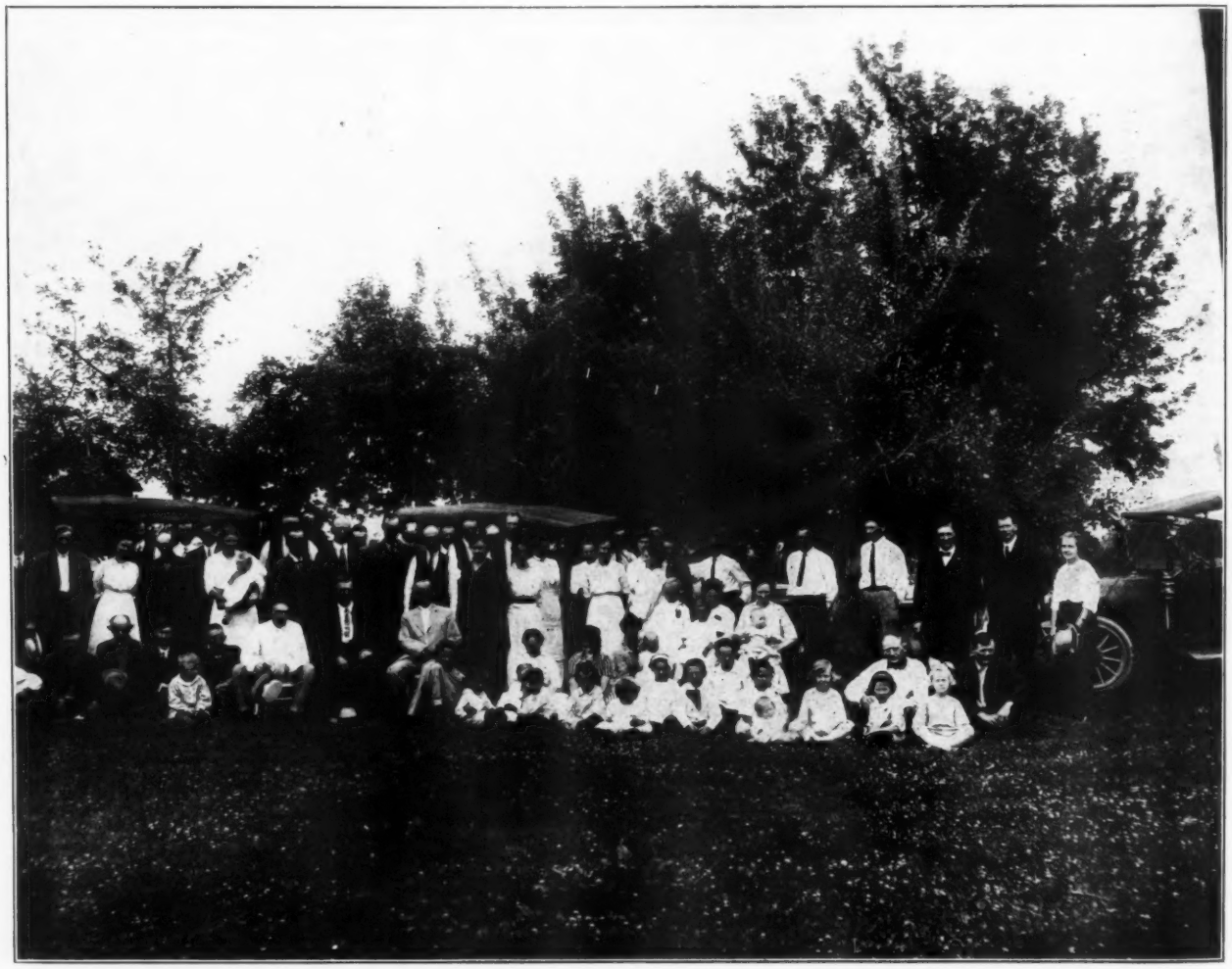
Officers elected for the following year were C. E. Dibble, president, and P. S. Farrell, secretary-treasurer.

The Government official had been telling a simple old Scotch farmer what he must do in the case of a German invasion on the east coast of Scotland. "An' hae I reely tae dae this wi' a' ma beesties if the Germans come?" asked the old fellow at the finish. The officer informed him that such was the law. "All livestock of every description must be branded and driven inland." "Weel, I'm thinking I'll hae an aufu' job wi' ma bees!"—*San Francisco Argonaut.*

To Iowa Beekeepers.—In planning for our program at the coming annual meeting Dec. 13, 14 and 15, we hope to make this the most successful of our meetings yet, and one to be long remembered by the beekeepers of Iowa. Most of the daytime programs should be ours for discussions and the giving of our experiences. Just a help-one-another experience meeting. To get the greatest benefit out of these meetings we should get help on our greatest troubles. We want a question box at this meeting that is full of the queries of members on problems they find in their every day work with their bees. It is not going to be the ordinary type of question box to be stuffed at the door with questions to be answered at the last few minutes of the meeting, but send your questions now while the propolis is still sticking to your fingers and your troubles are fresh on your mind. These should be sent at once to the president, C. E. Bartholomew, of Ames, Iowa, and they will then be assigned to the persons best fitted to answer them at the meeting. Don't be afraid to send in any and all questions you may wish information upon.

The *get together spirit* is what the beekeepers of Iowa most need at this time. The association needs more members and more work for the beekeeping industry of Iowa. If the whole fraternity of beekeepers had worked as hard as a few members did last winter the beekeeping legislation would not have died an untimely death last winter. There will be another legislature in the near future, and now is the time to start our fight for the beekeepers' rights by strengthening our organization and increasing the membership. Every member of the association should make it his business to send in the name and the fee of 50 cents of every beekeeper in his neighborhood who is not enrolled in the association. Send in one new member, that will double our strength at least.

Begin to plan now to attend the meeting, in Des Moines this winter, in person as well as in spirit, and do not allow anything short of sickness to prevent your being there. This is your meeting remember, and the success of



JOLLY CROWD AT THE IDAHO OREGON FIELD MEET HELD AT THE LOHRLI APIARY, PARMA, IDAHO

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it depends on your personal attendance.

At the evening meetings there will be lectures on live subjects by some of the best beekeepers in the country, and you cannot afford to miss them.

COMMITTEE ON PROGRAM.

J. Vandervort.—Mr. Vandervort may not be known by reputation to all our readers. He is the artist and mechanic who first manufactured comb foundation mills of varied fineness to make the different grades of foundation. His were the first machines to secure a base thin enough and a side wall light enough to avoid the "fish-bone" obstacle in foundation for sections. He is a most disinterested man who worked for the love of success rather than for profit. Having heard of his being laid up with rheumatism we wrote him to renew old time acquaintance and asked him for his photograph.

In reply we received the following letter:

LACEYVILLE, PA., Aug. 20, 1915.

MR. C. P. DADANT, Hamilton, Ill.

My Dear Friend:—Your very welcome letter was received. I am sending a photograph taken by one of the children in the yard. I do not think it will be any thing you can use.

I have been confined to my home for the past four years. I am unable to walk at all without the use of two crutches. I am in my 84th year now, so I cannot expect to appear very young.

It would give me great pleasure to meet you and yours once more.

Yours truly, J. VANDERVORT.
Laceyville, Pa.

Dr. Miller comments as follows:

"Very interesting it is to look again upon the face of my old friend, J. Vandervort. Long ago he ran a machine shop in Marengo. That was very early in my beekeeping career; indeed, before I had learned the size of a Langstroth frame. I had, to be sure, begun to use movable frames, but they were a sort of nondescript in size, deeper, and I think shorter, than the Langstroth. Then when he left Marengo I bought what hives he had on hand, some 20 if I remember correctly. Instead of the frames being 17⅝x9⅛, the regular Langstroth size, they were ⅜ of an inch longer and ⅛ shallower. I don't know why that was, unless because 18x9 appealed to Mr. Vandervort's mechanical eye as being more regular. Being made by so fine a mechanic, of course those hives were a fine specimen of workmanship. Neither of us at that time had any thought that he would come into such prominence as a maker of foundation machines. Here are my most cordial greetings, old comrade." C. C. M.

J. VANDERVORT

Obituary—C. F. Greening.—We have recently been apprised of the death of one of the pioneers of beekeeping, C. F. Greening, of Grand Meadow, Minn. He was born in Worcester, England, in 1845, and came to America with his parents two years later, settling in Wisconsin. He fought in the Civil War, going to Minnesota soon afterwards. He made his home in Grand Meadow until his death, which occurred on July 1, 1915. He was founder and president of the Exchange State Bank of that city. He had always taken an active interest in beekeeping, and was the originator of the successful non-swarming method given by him in our columns, page 310 of September, 1914.

BEE-KEEPING FOR WOMEN

Conducted by MISS EMMA M. WILSON, Marengo, Ill.

Beekeeping for Beginners—What is the Profit?

Inquiry comes as to the possibilities of beekeeping for a young couple with a great longing for country life. As usual, the question of profit is involved, as also the amount of capital needed in the business, the number of bees that can be kept on an acre, etc. Such inquiries are constantly arising, and it is a pleasure to reply thereto.

As to the profit, exact figures can be given of a net return of $40 from a single colony of bees. Names can also be given of women who have cared for 100 colonies or more, without calling in the aid of the masculine partner. A very little calculation will show that a a profit of $40 per colony the net income from 100 colonies is the neat little sum of $4000. As the capital invested for 100 colonies need not be more than $1000, this is rather an attractive proposition for the honey obtained. But there is money also to be made from the sale of bees. Affidavits can be produced to show that a single colony has been increased to ten in a season. Let us be conservative, and call it three. That would make the number at the close of the second season 9; 3d season, 27; 4th season, 81; 5th season, 243; 6th season, 729; 7th season, 2187; 8th season, 6561; 9th season, 19,683; 10th season, 59,049.

At this point it might be well to sell out and retire from business, for at $5.00 per colony the outfit would bring $295,245.

All this looks very pretty on paper, but it never existed except on paper. The number of those who have succeeded in owning as many as a thousand colonies is very small indeed. Although $40 and more has been achieved as the net returns from a single colony, such a result is very exceptional indeed, and probably no one ever succeeded so well with more than one or two colonies in an apiary of any considerable size, and perhaps only once in a lifetime.

Dr. E. F. Phillips, in his book, "Beekeeping," estimates the average annual crop of comb honey at 25 to 30 sections (each section weighing something like 14 ounces), and for extracted honey perhaps 40 to 60 pounds. How much money that would bring depends upon circumstances. In some places where prices are high and the retailing is done by the beekeeper directly to the consumer, the amount might be $10 or more per colony. On the other hand there are beekeepers who must sell at wholesale, and at such prices that the designated amount of honey would not amount to more than $3.00 to $4.00.

The question as to how many colonies of bees can be kept on an acre of ground is not to be answered in the same way as would that question regarding other kinds of stock. If a given number of sheep can be kept on an acre of ground, then twice that number can be kept on two acres, whereas just as many bees can be kept on one as on two acres. For that matter, a man or a woman with a good sized garden plot can keep just as many bees as the one with 500 acres. For bees are fleet of wing, scouring the field in all directions to a distance of a mile and a half or more, and it seems to make little difference to them whether a certain honey plant be a

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mile away or right at the door.

Considering the great area of flight reached by the bees of an apiary, it will be seen that the question as to what honey plants should be planted on an acre or two would be only a drop in the bucket. Indeed, there is no plant that can be profitably planted for the honey alone. Instead of thinking to plant for the bees, the thing is to find a place where already there are honey plants within a mile or so. Such places are almost everywhere. White clover, alsike, buckwheat, fruit trees and basswood are a few of the many plants from which nectar is obtained. Sometimes, however, something can be done to encourage the planting of plants that are profitable in other ways, and at the same time yield honey. Some beekeepers furnish alsike seed gratuitously, or at bargain rates, to be sown within a given distance. Sweet clover may be sown in waste places.

Not every place, however, where honey plants abound, is open to occupation. For in most such places the ground is already occupied. Although no one has a legal right to any given territory of bee pasturage, it is generally considered among beekeepers that one already on the field has a moral priority right, and if the field is fully occupied already, one who should establish another apiary on the same ground would be guilty of moral wrong, as well as doing a foolish thing on his own account. There are, however, many places where the precious nectar is going to waste.

There are probably not many places where more than a hundred colonies can be profitably kept in one apiary, and at any rate the beginner should hardly think of having more than two or three colonies at the start, increasing the number with increase of knowledge. With as many as a hundred colonies one would hardly have time for other business; but many a one keeps half a dozen colonies in connection with other business, hardly feeling the time taken by the bees, while having a bountiful supply of nature's choicest sweet, and some pin money beside.

For one who thinks of starting in beekeeping, the first thing is to secure a good text book on the subject, such as Dadant's Langstroth, Root's A B C and X Y Z on Beekeeping, or Phillips' Beekeeping. Afterward a periodical will be helpful, and we have the American Bee Journal, Gleanings in Bee Culture, and Beekeepers' Review. Farmers' Bulletins No. 447 and No. 503 can be had free from the United States Department of Agriculture, Washington, D. C. Some of the States issue bulletins on bee-culture. Bee conventions offer opportunities not to be neglected.

The born lover of bees will find the business fascinating and profitable. Others will be likely to continue it not for long.

Chocolate Honey Drops

Melt one cake of sweet chocolate. Take one pound of comb honey (one box), and just before the chocolate is ready to dip, cut the honey with a sharp, hot knife into pieces about one-half inch square. Pour the chocolate into a deep dish, and dip the squares of honey as quickly as possible, being careful to cover them completely with the chocolate. Set them aside on brown paper to cool.

How to Find a Queen

"My neighbor and I rear 3-banded Italian bees. He started two years ago with a 2-frame nucleus and an untested queen from Arkansas. He now has nine colonies and I have two from the same start. While we have both lost some swarms by not watching them closely, I think that is pretty good increase. These are my first bees.

"Last year my bees gathered but little honey, so I fed them 2 to 1 syrup. I put a double thickness of muslin (a flour sack) over the hive-body with a hole about 4 inches in diameter cut out of the center, then I turned a tin can of syrup upside down over the hole. I tied two thicknesses of muslin over the can first and put a super on. I threw an old quilt over them and they were fine this spring.

"Will you tell me how to find the queen? I lost a fine large swarm not long ago. It came out and went back to the hive. The next day I watched nearly all the time until dinner, when I left long enough to eat. When I went back they were gone. I was so disgusted I thought I would experiment a little and stop a second swarm coming out, as I read they would do this. This hive had been boiling over with bees for some time; the super was completely filled with them. Do you think I should have given more room or divided them before they swarmed? They were in an 8-frame hive under a tree facing south. The same day after they swarmed I divided them.

"I took out all the frames and looked them over. I could see no queen but lots of drones. Of course, I hardly expected to find a queen then. I found several queen-cells sealed. I took out three frames of brood with two queen-cells and put them and their bees into a new 8-frame hive, then I shook a lot of bees off the other frames into this hive, and filled both hives with empty frames, as I had no starters. I set the new hive about 2 feet from the old one. All the field bees except a few went to the old hive where I left five frames of brood and comb and two queen-cells. There were very few field bees working at the new hive, and I wondered if the brood would starve, though there was honey in the comb, too.

"I looked at it about the tenth day and found things were fine. The old hive had two empty queen-cells, and a great many eggs just laid, apparently, but I looked faithfully for a queen and couldn't find any. There were lots of drones. I have never seen a queen, but I think I would know one by pictures and descriptions, for I read a great deal about them. I suppose she is as likely to be on one comb as another. I am afraid I might have let her fall off the frames, for I took them all out and set most of them against the hive while I was looking for her. Do you think she would go back to her own hive again if I changed them?

"I am very much interested in bees, and I am going to try some of J. J. Wilder's Caucasians, I think. I have a small fruit farm, so have neighbors around me."

[Mrs.] Jennie E. Merritt.
Kewanee, Ill.

Your rate of increase was unusually rapid. Too bad you lost those swarms.

Finding a queen is chiefly a matter of patient looking. With practice you will become proficient, but some little things will help from the start. If possible, when looking for a queen, sit with your back to the light. Use as little smoke as possible. If you smoke heavily, so as to get the bees running, you may as well bid good by to the queen until another time. Handle the frames gently, without any jarring. If there is no brood in the first frame or two, it is hardly worth while to look there for the queen; she will almost certainly be on one of the frames having brood. The queen is quite inclined to get away from the light, so when you lift out a comb you are to look first at the side farthest from you, but before this you had better glance at the side of the next frame in the hive. After first looking over the farther side of the comb in your hand, examine the other side, and thus proceed until you have examined all the combs.

Although it was not worth while to look at the first comb if no brood was in it, it is worth while to look at the last frame, even with no brood in it, for in fleeing from the light the queen will go upon a comb without any brood. If you don't find her with once looking over, try it the second time. If you don't find her then it is hardly worth while to continue the search. To be sure, you may find her the third time, but in some way she is likely to be hidden, hard to tell how, and you may look an hour longer without finding her. But if you close the hive until the next day, or at least until an hour later, you may then find her without trouble. You will learn more about finding queens by actual practice than by all the instruction in the world.

As to that swarm going off, of course you would have saved it if you had divided the colony before it swarmed; but the thing you are not easily forgiven is that you did not clip the queen, taking off both wings on one side. Then the swarm could not have gone off, and the worst that could have happened would have been the loss of the queen, yet there is not one chance in five that that would have happened.

Replying to your question about losing the queen when handling those frames, it is not likely you lost her in that way, although if you have a long experience you will find that sometimes a queen will drop off a frame on the ground or turn up in the most unexpected place, even on top of your hat—that last thing has happened several times "in this locality." But if she falls off on the ground she is practically certain to find her way back to the hive, unless there is some other hive nearer, and if she enters that she is a goner. If you set the first frame on the ground, leaning it against the hive, there is little danger of any mishap; but if you take out more frames it is better to set them in an empty hive.

It is not entirely clear what was your proceeding, but after you made that division, and a queen was laying in

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one or each hive, if you took combs with adhering bees, or bees without combs, from one hive to give to the other, without seeing the queen, you did a reckless thing. Please don't ever do anything of that kind again without *knowing* where the queen is. For if you changed a queen from one hive to the other, you may be sure that queen will never get out of that hive alive. Still, you are quite right in making use of the movable feature of your hives. What's the use of movable frames if you don't move them?

You say you wish you had divided your bees before they swarmed, and given just one queen-cell to each. That would do if you removed the old queen, but if you left the old queen with one of the queen-cells, and that on the old stand, there would be quite a chance of the old queen leaving with a swarm.

Even if Caucasians are better for Mr. Wilder, are you sure they will be better as far north as you are?

BEE-KEEPING IN DIXIE~

Conducted by J. J WILDER, Cordele, Ga.

The Season's Results

As previously stated, Dixie has had an off season this year. In some sections no surplus at all; in most sections just a little; in some spots an average crop. In the great cotton belt the flow from this source has been one-third of a crop, owing to the smallness of the plants caused by adverse weather conditions. In the partridge pea belt the yield from this source is as good as common, if not a little better.

Owing to the abundance of rain the prospects for a late fall flow from goldenrod and asters are good, and the outlook is that the bees will go into winter strong and heavy in stores.

Caucasian Bees Not All Alike

Dr. Miller, on page 317, September number, "Caucasians or Italians," says "most beekeepers prefer the Italians, but Italians are not all alike and neither are Caucasians." There can be no doubt that this statement is true, for some strains are better than others in both races. However, there is nothing definite in this statement, and the fellow "on the fence" over the stock question does not know which to buy. Buyers generally select their strain and stock from the statement of the queen-breeders. Each queen-breeder should be willing to stand back of his statement and guarantee the good points of the stock he sells as mentioned by him. I know of one case at least where this was done and the breeder made good the failure of his queens in the merits represented. Many buyers make the great mistake of buying stock from many queen breeders when it would be far better to purchase all queens from breeders whose stock has the desired merits or qualities.

Now about good and poor Caucasians. I had some experience at different times with the latter when my stock was imported, but there was an easily distinguished difference in their colors or markings, varying from a dark smutty greyish color to a very bright grey and some almost yellow. It was the more smutty color with the brighter steel colored bands that had the highest qualities, and I let the other varieties go and stuck to these with remarkable results. So all Caucasians are not alike in color or qualities, as Dr. Miller states.

Since my stay up in the mountains on the line of Georgia and North Carolina this summer, I have been out over much of North Carolina and South Carolina, both by rail and on foot, making a study there of beekeeping as well as of the honey plants, etc., and on my rounds I have seen some Caucasians that were under test and were not satisfactory at all. They would not work in supers or store any surplus honey, and never got very strong, and were far from having the general characteristics of their race, so even this, the strongest race of bees known to us, has species that are almost worthless. No, they are not all alike in qualities.

[The great objection to Caucasians, in our experience, is the difficulty of recognizing a small amount of hybridization with the common bee. In the Italian race, the crosses show much more readily. Yellow Caucasians are not liked in Europe.—EDITOR.]

TUPELO GUM IN BLOOM

Tupelo Gum a Rare Honey Plant

The market is always open, and there is a ready demand for the thick, delicious non-granulating tupelo gum wherever it is known. It is of very bright lemon color, is as attractive as its flavor, and perharps there is no honey equal to it in quality. But there isn't a great amount of it saved in its purity, owing to the scarcity of the plant and its timid way of yielding, although when conditions are right it is our heaviest yielder during its short blooming period.

But there could be much more of it produced if beekeepers would consider its value and locate at least a part of their bees in places where it is found. It grows along the water's edge and through swamps or low lands of many small streams in southern Georgia and northern Florida, as well as along a number of the larger streams, but you find it mostly scattered under large timber (see cuts) growing very dense in some places.

How to Prepare Bees for Wintering

"MR. WILDER:—How can I prepare my bees for good and successful wintering? I am running for chunk honey, and I want to take off my fall crop. May I expect to find enough honey in the brood-chamber for winter stores. I use 8-frame hives, and have some supers with empty combs. What should I do with them? I also have two weak colonies; can I build them up at this season of the year? How much stores should I leave in each hive?" L. N. HODGES.

Oliver, Ga.

It is never advisable to suppose that there is plenty of stores in the single brood-chamber to winter the bees on, for there is a large number of colonies

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in every apiary that are almost storeless, especially where they have been supered well. The only safe thing to do is to examine them carefully at this time, looking over each comb. The amount of stores each colony should have for successful wintering depends largely upon how soon the spring flow will come next spring. If it is late it will take considerable more.

My bees in the huckleberry and titi region consume only a very small amount of stores because the flow is on as soon as there is some let up in the weather in very early spring, while in the gallberry and poplar region, when the flow comes on in the latter part of April, my bees consume more stores.

To be on the safe side in the first case one average frame of honey together with whatever may be around the brood will be sufficient, and in the latter case two frames of stores will be enough. These frames of stores are best placed on either side of the hive up against the wall, and never in the middle of the brood-nest If the frames of honey are not obtainable we have to resort to the honey stored in the supers, and in this case we leave the supers on over winter, but not more than one to each colony. The off grades or unfinished sections to the amount of 10 or 15 pounds of honey can be left to them and they will carry it down as they need it during warm spells. Sometimes they carry it down and store it in the empty comb below, if it is uncapped. If they do this by early winter, the supers can be removed and stored away for baits next spring.

It is always better to remove all supers at the approach of cold weather, as they are of no service at all if left on, and besides they add a lot of extra space for the bees to keep warm during cold weather, which indeed is a great tax on them at this critical time. The necessary heat of the cluster is maintained at the expense of the stores they have, and successful wintering depends upon the amount of stores. We should be thoughtful of our bees in this struggle to maintain their existence, and do all we can to help them over it. Close clustering quarters and plenty of stores are the main requirements.

As for building weak colonies up to stronger ones at this late time, it is difficult, but it is better to do it even now than not at all. Only frames of well sealed brood should be added, one to each nucleus every six or eight days from the strongest colonies. You may find but little brood in colonies headed by old queens, and here again is where young queens are needed. If the weak colonies only contain a double handful of bees each, it would be best to unite two together before starting to build them up. This can best be done by the Miller plan, setting one on top of the other with a sheet of newspaper between which the bees will gnaw away and quietly unite. Then the bees can all be placed in one body and the other set of combs placed on a strong colony until settled cold weather when they can be removed and set away for next season's use, or they can perhaps be best used by replacing undesirable combs that are in the apiaries.

FAR WESTERN BEE-KEEPING

Conducted by WESLEY FOSTER, Boulder, Colo.

Rosinweed Honey

Bees will not begin working on rosinweed until sweet clover and alfalfa have largely stopped yielding nectar. Rosinweed is very plentiful this year, and some of our late honey will be yellowed considerable by it.

Photo Plates for Shipping Cases

Mr. W. P. Collins, of Boulder, purchased several thousand used photographic plates, 5x7 inches in size. By using this glass for shipping cases a saving of more than one cent per case was made. The glass is cut in two and then cut to length so that two pieces make one length of about 12 inches in a double tier case. This photographic glass is clean, and none of the lights are too thick for the groove, as is often the case with so much glass cut to order. The photo glass is cleaned with lye, and a large quantity can be cleaned by filling the cleaning vat, using coarse sand between each layer of glass so that the lye water can reach the entire surface of all the glass.

Value of Sweet Clover

I notice that Mr. R. A. Morgan, of South Dakota, is quoted in "The Southwest Trail," official publication of the Rock Island railroad, as saying that sweet clover is worth $25 an acre for honey, and that he would pay that much rental for sweet clover acreage within a short distance of his apiary. If Mr. Morgan is correctly quoted, I fear he is valuing sweet clover rather high. Some seasons, sweet clover might be worth $25 an acre, but I think Mr. Coverdale's estimate of $4.00 an acre is nearer correct.

If Mr. Morgan would contract for two or three hundred acres of sweet clover for a term of several years some one could make a small fortune renting him bee pasturage. I saw hundreds of acres of sweet clover, this year in Colorado, that was not worth 50 cents an acre for bees on account of poor weather conditions.

The Boulder County Fair

The Boulder County Fair held at Longmont Sept. 7 to 11, was a success in may ways. It was the opening season, and the grounds and buildings are all new. The main exhibit building is the finest one in the State outside of the State Fair, and I do not doubt it has no equal there. The bee and honey exhibit was creditable, although there was only about $25 in premiums offered. Prof. D. W. Spangler had charge, and Mr. J. C. Aikin, of Loveland, was judge.

The premiums were awarded as follows: General display of honey, bees and apiarian products, S. Francis; best six cases of comb honey, Milton Can-

TUPELO GUM AS SEEN ALONG DIXIE STREAMS

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tonwine, first; A. J. McCarty, second; best case fancy comb honey, Milton Cantonwine, first; D. W. Spangler, second; best case No. 1 comb honey, A. J. McCarty, first.

Boulder beekeepers were not represented in the exhibits, but another year they should be.

CALIFORNIA BEE-KEEPING

Conducted by J. E. PLEASANTS, Orange, Calif.

Honey Crop in Southern California

The crop in southern California averaged from 50 to 60 pounds per colony only, as nearly as can be ascertained, for this season. This light yield was due to rather extreme weather conditions in the spring, in some localities to the ravages of the sage moth larvæ, but most largely to the presence of European foulbrood. This has been almost an epidemic in our immediate section this year. Out of about 8000 colonies in our county we found 1000 diseased with this malady, while we found only 25 cases of American foulbrood. We have worked hard on the latter for a number of years, and have it practically stamped out. But now we are confronted with the European, and the discouragement that always accompanies its advent. It is a hard thing to deal with, owing to the little that is understood as to the method of carrying the infection, but our skilled beekeepers are taking hold of the problem with a will and we expect to win out. Increase has been small this year; in fact, I doubt if increase has been sufficient to make good the losses caused by disease.

Our honey was of a most excellent quality in the sage region. The first two runs were water-white of heavy body. We were interested in Mr. Foster's remarks in September Bee Journal, on the use of honey in cooking. There is quite a field to be opened up in that direction. We hope the Colorado Station will issue a bulletin on that subject for distribution.

The *Grevillea robusta*, or "silky oak" referred to by Mr. Rayment in September issue of the American Bee Journal is grown to quite an extent in southern California as an ornament, but not so much as formerly, as it is found to be quite easily broken by the winds in winter, and many beautiful trees are thus given a ragged appearance. It has been largely replaced as a street tree by the black wood acacia. The drawing by Mr. Rayment of the spray of blossoms with the "honey-eater" is certainly very beautiful.

The bees here now are working heavily on the species of eucalyptus in bloom at this season. The "sugar gum" and ironbarks are musical these mornings with the hum of bees on their sprays of bloom. The autumn blooming eucalypts should be more largely planted on the waste lands on our bee ranches.

CANADIAN BEEDOM

Conducted by J. L. BYER, Mt. Joy, Ontario.

Bad Weather

On Sept. 13, we still have heavy downpours of rain so frequently that hundreds of acres of heavy crops of grain will be a total loss. But for the last two weeks, whenever we have not had rain, the weather has been warm—some days quite sultry. There is nothing doing here, so far as the bees are concerned, as buckwheat is past. But at the north yard the asters and goldenrods are yielding freely, and once more we will have the bees wintering on stores that generally give a bad account of themselves, though our bees at this yard wintered perfectly on this honey last year.

There is nothing to do but risk it again, as brood-nests as well as supers are filling, and by the time the flow is over the weather is too cool to tear brood-nests to pieces to extract the honey. As was done last fall, we will feed the colonies in Langstroth hives all the sugar syrup they will take after the supers are off, and the large hives will have to take chances, leaving them as they are.

Ontario Convention

Present intentions are to hold the Ontario convention during the last week in November. This is later than usual, and a large number of beekeepers, who are also deer hunters, will have a chance to attend the convention and yet not miss their annual hunt. We are hoping for a large attendance from all parts of Ontario as well as other Provinces and are expecting a number of friends from over the line. Last fall the latter were conspicuous by their absence, and we sincerely hope to see old-time friends and many others present.

One attraction alrea ly secured, I believe, is Dr. Phillips, of Washington, D. C., who has promised to be present and give a number of illustrated addresses. The date being later than usual, those who winter their bees in the cellar will have their work done so that they will be able to come, too. The trip at that time of the year when work is not pressing will be a source of pleasure even if nothing be gained from a financial standpoint.

Fair Crop

While the season has been a peculiar one in Ontario in many respects, yet after all the ups and downs, the majority of sections have given a fair yield of honey. In our own case, while the crop is light in York county apiaries, the northern apiary has been fairly generous in returns, so we are not at all pessimistic.

By the way, I have never before tasted anything better than some honey produced at that apiary this year, a blend of willow herb and basswood. It is simply exquisite. I am sorry to say we have none to sell as the supply was limited, and our own year's reserve for our family's use is about 300 pounds.

Good Prospects for Clover

Owing to the great amount of rain, clover is coming on abundantly and, good winter assured, 1916 should be a genuine clover year. Some have expressed doubts as to the clover wintering well if we should have a severe season, as the plants are rank and tender. But in the fall of 1912 we had somewhat similar conditions with rank growths of clover, and the plants never came through better. This comment is of course in relation to alsike clover, as white clover generally winters no matter how the plants are, provided they are alive in the fall—late summer drouths being the chief danger.

The Value of Proximity of Water in Spring

Often I am asked by beginners the proper way to face hives in an apiary. Many of our best apiarists use the quadruple case for wintering, and they have the bees, during winter and summer, facing all points of the compass.

It appears to make little difference in results, no matter which way they face, but personally I much prefer the south entrance. It is the coolest during a time when coolness is desired, while during early spring when warmth is required, it is the warmest. All our bees except those at the Cashel apiary face south, and the picture shown will explain why we did not face the hives south in this yard. The picture was taken some distance from the bees, so that the slope would show plainly. The ground slopes to the west, and of course it was much easier to place the hive stands facing that way, as I like the hives to lean well forward for outdoor wintering. They have been placed that way for two seasons, but even if it will take a lot of work to change

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them around, we seriously think of doing so. Why? Because on a hot summer afternoon the heat is intolerable to the bees, and they are driven away from the entrances often to the back and underneath the hives.

The apiary is in too hot a spot to start with, as the swamp shown shelters the bees on the southwest, west, north, and northeast, leaving only an opening to the direct south. As a result, little wind reaches the spot, and while it is ideal for bees in many ways, it is too hot during summer. I think if we face the hives south it will improve matters, as the sun will not be "blazing in" at the entrances all afternoon.

The other picture shows another apiary of ours, picture taken last spring, just when bees were being unpacked. Some of the packing cases will be noticed piled two deep at the end of the yard. This yard is sheltered on all sides with timber and high land. It, like the other yard, is an ideal location, but is also very hot at times. Shelter like this is, in my opinion, much better than a board fence. At both the apiaries shown here there is damp ground at the bottom of the yard, and bees can get all the water they need in early spring without leaving the shelter of the timber. This is a valuable factor. Many apiaries are kept back in cool spring weather because great numbers of bees are lost while out after water. Often, at that time of the year, the sun will come out brightly and the bees will be tempted to take the long trip for water; in a moment the sun goes under a cloud and stays there long enough to chill them so that they never get back to the hives.

I have learned the value of near-by water by having bees where it was not handy—results showing the difference are always in evidence.

CASHEL APIARY OF J. L. BYER

ANOTHER BYER APIARY PROTECTED FROM THE WIND BY WOODS ON ALL SIDES

[Our experience coincides with that of Mr. Byer. At two different times in past years we had occasion to handle yards in which the hives faced due north. The results in the winter were disastrous. Mild winter days were of no avail to them, and the long confinement and cold exposure killed them. Perhaps these were colder winters than common. But we have no desire to repeat the experiment. It is quite probable that quadruple cases give a different result.—EDITOR.]

CONTRIBUTED ARTICLES

Extracting Combs vs. Sections

BY DR. C. C. MILLER.

IT is said that a great deal more honey can be obtained in extracting combs than in sections. Taken as a general statement, this is true, emphatically true. But there is danger that it may be carried too far, especially by beginners. In too many cases the beginner has an idea that in some way not clearly understood there is a magical attraction for bees in an extracting comb even if there be no comb in the case, but merely a frame filled with foundation intended as an extracting comb; and that on the other hand the bees have a certain aversion to a section, no matter what may be in the section.

Nor is this idea entirely confined to beginners. Not many years ago a plan had a certain vogue, which was as follows: "When the harvest begins, give the colony a super of extracting combs, and when the bees have filled these to a certain extent put a super of sections under the extracting combs. The bees will at once begin work on the sections, and the result will be that you will get just as many sections as if you had not given the extracting super, and the extracted honey will be so much extra." The idea of getting something for nothing is generally an appealing thing, and when this plan was endorsed by experienced beekeepers it is no wonder that that super of extracted honey free gratis for nothing appealed strongly to beginners. But latterly we hear nothing of the plan.

Let us see if we cannot get right down to the bottom of the case. A frame intended for an extracting super has no more attraction for bees than a section *unless* there is something attractive contained in the frame. That something is comb—drawn comb—and drawn comb is just as attractive in a section as in a full-sized frame. A frame in an extracting super may be filled with foundation, with drawn comb, or with starters of either. The same may be said of a section. When an extracting super is given it generally contains drawn combs, and when a section super is given it generally contains foundation; so it is true in

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general that bees begin work much more readily in an extracting super than in a section super.

If both the extracting super and the section super are filled with foundation, or if both are filled with drawn combs, then there will be no perceptible difference as to the promptness of the bees in beginning work, although it is quite possible there may be a slight difference in favor of the extracting super, since the bees may not like so well the separators and the smaller compass of the sections.

But let an extracting super be filled with foundation and the section super with drawn comb, and the bees *will prefer the section super every time.*

Neither is it necessary that the super, no matter which kind, be *filled* with drawn comb to attract the bees. If a single comb be present, no matter whether in a frame or in a section, you may rely upon the bees to begin work in it just as soon as there is lack of storage room in the chamber below. More than once it has been shown in a poor season, when a single bait section (a section containing drawn comb) was given in each section super, that throughout the whole apiary the baits were filled and nothing more done in the supers. It is very doubtful if work would have *begun* any sooner if the whole super had been filled with combs.

From all this it is easy to see that when an extracting super was first given, and afterward a section put under it, the bees would begin work more promptly than if a section super without any bait had been first given, and also that more honey would be obtained in a super filled with combs than in one filled with foundation, resulting satisfactorily *if* that amount of extracted honey were desired. But if the desire were to have all the sections possible, then it can be seen that the bees would have begun work just as promptly in the sections without the extracting combs preceding, provided a bait were used, and that it is all moonshine to think that a super of extracted honey was obtained without lessening the crop of section honey.

Some have thought that if a frame of foundation be put at each side of a super, the remainder of the super being filled with sections, and all supplied with foundation, the bees would commence work first upon the frames at the sides. If such persons put the matter to actual trial, I think they will find that the bees will begin first on the sections, not because they prefer sections to frames, but because the sections are in the center.

[This is one of the rare instances where the two editors do not fully agree, or at least where I find it necessary to emphasize a part of Dr. Miller's statement, while not fully agreeing with the rest.

There is "a difference in favor of the extracting super, since the bees may not like so well the separator and the smaller compass of the sections." This is where emphasis, to my mind, is necessary. From actual tests made a number of times, I have ascertained that the bees *do not* like so well the separators and the smaller compass of the sections. For an explanation of the reason why the bees do not like so well the small compass of the sections, it is necessary to refer to the explanation given in paragraph 741 of the "Hive and Honey Bee," where Oliver Foster, now deceased, is quoted. He said:

"When we take into consideration that the object on the part of the bees, in storing up honey in summer, is to have it accessible for winter consumption, and that in winter the bees collect in a round ball, as nearly as possible, in a semi-torpid condition with but little if any motion, except that gradual moving of bees from the center to the surface and from the surface to the center of the ball, we may imagine how unwelcome it is to them to be obliged to divide their stores between separate apartments, each of which is four inches square....."

The use of the separator still increases the bees' dislike of this storage room.

At several different times I have tried giving to a strong colony sections with separators in the center of the super, with extracting frames on the sides, all supplied with strips of foundation, and in every instance the bees began at both sides, in the extracting frames—although the sections were nearer to the brood—and filled the extracting frames almost entirely before beginning in the sections. Emphatically, the bees *do not like so well the small compass of the sections.* I can imagine but one condition in which the bees might begin in the sections first. This would be if the extracting frames were so remote as to be out of the part kept warm by the cluster.

As this matter is of interest, and as conditions might cause a difference in results, we would like to have experienced apiarists make tests of this matter and report.—C. P. D.]

This criticism having been presented to Dr. Miller, he replied in his inimitable style, as follows:

Again I'm the victim of misplaced confidence. Trusting to an acquaintance of some years with bees and their habits, I decided what they ought to do, and with the confiding innocence of youth and inexperience trusted they would do what they ought to do, and gave my verdict accordingly. Now comes the higher court and makes a reversal of my decision. As between the two decisions, I decided what the bees ought to do, or at least what I thought they ought to do, and you decide by what they actually have done. I've tried—tried hard—to think up some sort of way to explain that your experience is exceptional. Can't think up anything that will pass muster. So I must ruefully admit—once more—that I don't know as much as I thought I did about bees. But I'm learning, and so not utterly discouraged. If you will formulate into words in a proper manner an expression of deep humiliation at the exposure of my ignorance, I'll return it signed.

And now will some one be good enough to tell me whether in all cases bees will begin first on an outer extracting frame, said frame being filled with foundation only? If they will, it certainly appears to be a good thing. That frame will be all right for extracting or for bulk honey, and we will be rid of the outside row of unfinished sections that we generally are more or less troubled with.

Other things being equal, I think we would all expect the bees to begin on the central part of a section super. In the cases cited, the only thing, apparently, to make the bees depart from this rule is the absence of the three partitions made by the end-bars of the sections. Has the strength of the colony anything to do with the case? Dadant colonies have a habit of being strong. In the case of a very strong colony, in a very heavy honey flow, bees work pretty much alike all over a super of sections. In such a case it is not very hard to imagine that a very little preference for the less confined outer part might make the bees start there a little sooner. The question is whether the same would hold with a weaker colony, or in a poorer yield. It will be interesting to have testimony from any one who may have experience on this point.

The thing now learned is that bees dislike having their storing room cut up into small compartments so much that they will begin on the outside rather than the inside if the outside be less divided, and I suppose this holds true whether the super be filled with foundation or drawn comb, so long as both frames and sections are filled with the same thing. This, however, is a matter independent of the fact that bees have a strong preference for drawn comb as compared with foundation, so strong that the drawn comb will be first accepted, whether the compartment in which the drawn comb is found be large or small.

Marengo, Ill.

The Hamilton and Keokuk Meetings

BY FRANK C. PELLETT.

THE dates selected for the Hamilton field meet and the Keokuk conference were very fortunate. Favorable weather this unusually wet season was hardly to be expected, but the weather was lovely. The attendance was gratifying since beekeepers came from long distances to attend the meeting. Iowa was especially well represented, many coming from one to three hundred miles. Not only did they come from the three States of Iowa, Illinois and Missouri, but a number came from several other States as well. Automobiles were furnished to convey the party immediately to the home apiary and factory of the Dadants, where the forenoon was spent in informal visiting, getting acquainted and inspecting the plant. To many the process of foundation making was some-

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Beekeepers in Attendance at the Tri-State Field Meet Held at the Dadan

thing new, and much interest was manifested in every stage of the work.

When the dinner hour arrived the guests were seated at long tables where they were served with a bounteous spread. The ladies of the Presbyterian church had the dinner in charge, and seldom has the writer seen such a crowd served so promptly and well. The hungry crowd, many of whom had been traveling for 24 hours, did ample justice to the meal.

Seats were provided under the big trees where for many years the late Charles Dadant had delighted in caring for his bees. No set program had been announced for the day, but several prominent men were called upon for short talks. N. E. France, State Inspector of Wisconsin, E. R. Root, editor of Gleanings in Bee Culture, Dr. E. F. Phillips, of the United States Department of Agriculture, Dr. L. H. Pammel, Botanist of the Iowa Agricultural College, Frank Coverdale of sweet clover fame, and others gave interesting addresses. During a short recess in the program the crowd posed for the picture shown in this issue.

Late in the afternoon the automobiles were again called into service to convey the visitors to the big dam across the Mississippi river. A special guide was provided to conduct the party through the power house and to explain the wonderful machinery by which the electric current is generated. The street cars of St. Louis are run by power from this plant, and her streets are lighted from its electricity also.

The visitors were invited to the home of C. P. Dadant to spend the evening. A most pleasant hour was spent in listening to personal recollections of prominent beekeepers who have passed on. Mr. E. J. Baxter told of Charles Dadant, E. R. Root mentioned interesting visits with Langstroth, N. E. France gave an account of his acquaintance with Adam Grimm, and both Root and France were called on to tell something of their impressions of W. Z. Hutchinson.

So much regret was expressed because Dr. C. C. Miller was unable to be present that Dr. E. F. Phillips was asked to give his impressions of the most popular living writer on beekeeping.

The following morning the automobiles were ready to convey the guests to the historic town of Nauvoo. Many interesting things were seen on this trip, among which may be mentioned the former homes of the Mormon leaders, Joseph Smith and Brigham Young. The party also visited the home and apiary of E. J. Baxter, president of the Illinois State Beekeepers' Association. The pressure for time in order to get back to Keokuk for the second days' meeting made it necessary to forego visiting some interesting points.

The forenoon session at Keokuk was given over to the study of honey-producing plants. Dr. L. H. Pammell gave an address on "Place of Botany in the Beekeepers' Education," which will be reproduced in the Bee Journal, after which he identified a large number of flowers and plants brought in by Miss Mitchell, of Keokuk, and answered questions concerning the honey-producing flora.

The afternoon session was given over to the conference of bee inspectors and problems of inspection and control of disease were discussed. N. E. France proposed joint action of the inspectors of the various States through the United States Department of Agriculture. Since there is always difficulty in controlling disease along the borders of a State because of its presence just across the line, Mr. France's suggestion seemed very timely and he was appointed to represent the inspectors and Dr. Phillips to represent the Government in formulating a plan of action.

A paper by Mr. J. E. Crane, of Vermont, was read, as Mr. Crane was unable to be present.

Dr. Phillips outlined some important work in connection with the inspector's official duties. He especially called attention to the importance of the educational work which an inspector is in position to do. Several inspectors were present and it is believed that important results will come from this conference. The discussions brought out the need of information as to how European foulbrood is spread. At present there is no definite information on the subject. There are plenty of guesses but no positive knowledge.

Nothing was overlooked to add to the comfort or convenience of the visitors. A few were missed at the trains because the drivers did not recognize them, but as soon as they were located they were well cared for.

Arrangements were made for another interstate meeting next year, the time and place to be settled by a committee composed of N. E. France and the presidents of the Iowa and Illinois

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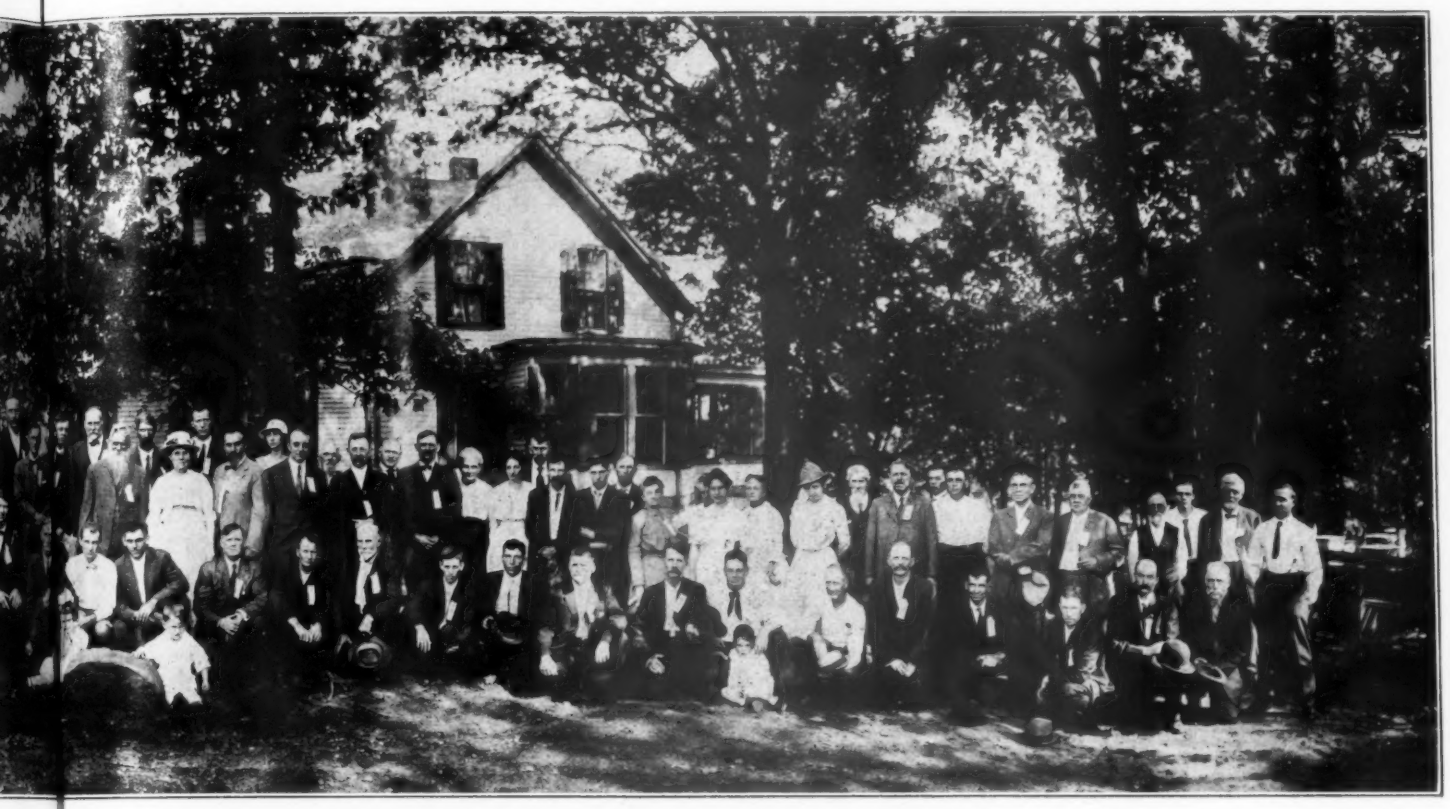

l at the Dadant Home Apiary at Hamilton, Illinois, September 7, 1915

associations. Some city along the Mississippi river will probably be selected.

Atlantic, Iowa.

Selling Honey by Mail

BY DR. A. F. BONNEY.

I HAVE made several adventures into the domain of advertising to sell honey by mail, and find one serious handicap, the breaking of containers by careless mail clerks and others who handle the sacks. These men, or many of them, seem to have an inherent hatred of parcel post packages that are at all heavy, and a "fragile" tag is little or no protection.

In this connection let me suggest that it is unfortunate that the laity cannot be educated to know that candied or granulated honey is certain to be free from glucose, in other words, that it is pure, for once the consumers are aware of it, honey producers could let their honey solidify in the containers and thus insure safe shipment.

One man at least is on the right track, for in a catalog of labels recently received I find the following:

"TAKE NOTICE. — As manufactured adulterated honey cannot be made to imitate the granulation or 'candying' of pure honey, granulation has been found to be the only ready test of pure honey. I, therefore, do not ship extracted honey before it is thoroughly granulated by cold weather; I *warrant* every pound put up and shipped by me to be absolutely pure honey as collected from the blossoms by the bees. To restore to the original form and retain the original honey flavor, set the can in warm water and remove cover, but do not heat honey to the boiling point. Let cool before using."

I am seriously inclined to begin using a label similar to the above and send out only solidified honey up to and including 60-pound pails, instructing them regarding the reliquefying of the honey, but urging the customer to first try eating the candied honey. Personally I prefer it to either the liquid extracted or comb honey.

I am now going to suggest that beekeepers begin circulating the fact that candied or granulated honey is pure,

E. R. ROOT, L. H. PAMMEL, F. C. PELLETT, E. F. PHILLIPS, C. P. DADANT, AND N. E. FRANCE—Six of the speakers at the Tri-State Field Meet

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by the use of stickers similar to the "Eat Honey" ones. Printed from type, on gummed paper, they would be very cheap, and in a short time we could be shipping candied honey in cheap containers, and feel quite certain that the goods would arrive safely. The above labels are quoted at $1.00 a 1000, $2.00 for 5000, or $12 for 25,000. I shall at once commence using an adhesive of this kind, but think I will rewrite it as follows:

NOTICE.—Adulterated honey cannot be made to granulate, so when a lot of honey does candy we know that it is pure. Any honey will granulate if exposed for a time to a temperature below 70 degrees Fahr., but it is very easy to restore it to a liquid form by setting the container into a dish of hot water. The temperature should not exceed 150 degrees Fahr. for fear of injuring the flavor. Honey eaten while granulated is delicious. *Remember*, granulated honey is *pure* honey.

For my individual use I may add: *Honey* bearing my label is guaranteed to be as pure as the bees can make it, and to conform to all requirements of the pure food laws.

Such a sticker put on with the regular label would have great influence, and if made part of the regular label will be cheaper and more effective. It would be well to use them on letters and in public places,, while their use on honey packages is more logical.

Buck Grove, Iowa.

[It may not be amiss to state that the elder Dadant, whose portrait has been at the head of the pages of the American Bee Journal in company with that of Mr. Langstroth for a number of years, placed there by the previous editor, put upon his honey labels, as early as 1874, the following words, which are still used on our labels: "The granulation of honey is the best proof of its purity." We have at all times urged the selling of honey in the granulated form, and would be glad if others would follow the suggestion. We are told that an adulterated product can be produced that will also granulate, but the adulterations as far as we know are always in liquid form.—EDITOR.]

MR. PELLETT IS A CLOSE OBSERVER AND WILL SPEND MANY HOURS IN ANY KIND OF WEATHER IN ORDER TO LEARN A NEW FACT OR CONFIRM A THEORY

MR. PELLETT'S "BUGHOUSE" BUNGALOW IS AN IDEAL PLACE FOR REST AND CONCENTRATION

A Naturalist of the Old School

BY D. A. DAVIS.

FEW men would spend one-third of a perfectly good summer in studying the habits of a family of wasps, but to do just such things Frank C. Pellett left a growing law practice to live in the woods. Eight years ago he abandoned the artificial life of the office in town and with his family moved to the country to spend the rest of his days in the intimate contact with wild creatures that only a naturalist knows.

Half of the little farm where he lives, near Atlantic, Iowa, is given over to a preserve devoted to the keeping of native birds, animals and plants. Probably more species of native plants are growing there than are to be found in any similar area of the State, and more species of bird's nests than in a like situation anywhere in the middle West. A haven is offered for all kinds of little animals and reptiles, and species are surprisingly abundant. Dozens of rabbits play about the dooryard, and skunks raise their brood in the outbuildings.

A two-room bungalow on the lawn, called the "Bughouse," serves as a study and houses his library of scientific books and collections of insects and other material dear to the heart of a naturalist. Here, hidden from the eyes of the world he spends uncounted hours in the preparation of numerous manuscripts relating to the creatures under observation and in the pursuit of special studies. Some investigations occupy years of time and require infinite patience. Much time has been spent in special study of birds of prey and the predacious animals. During the past summer a family of gold-banded paper-making wasps has been under constant observation. In a bad storm in July the nest was thrown down and the mother wasp disappeared. In order to continue the study it became necessary to raise the young by hand. After having seen the mother feeding the babies with caterpillars many times, he did his best to follow her example, giving them the bits with a timothy stem. Some of the younger larvæ died, but the older ones were

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successfully reared.

While most of the studies undertaken are carried on at Tamakoche, as the Pellett country home is called, an occasional journey is taken into the bad lands or mountains or other out of the way place for special material. Mr. Pellett enjoys especially his occasional visits to the Indian reservations, and among them goes by the name "Big Spider."

Mr. Pellett needs no introduction to the beekeeping fraternity, as he has accomplished much in that line. He has written numerous manuscripts and several bulletins on different phases of the science, and at present holds the position of State Inspector of Iowa.

Ames, Iowa.

Cane Sugar vs. Beet Sugar

What is the Proper Proportion of Water to Sugar in Making Syrup?

BY J. A. HEBERLE, B. S.

FREQUENTLY in discussing the feeding question cane sugar is recommended as being preferable to beet sugar for feeding bees. Mr. D. D. W. wrote recently "in regard to the trouble so many have with feeding hard candy, let them take a tip from a professional candy maker, and use only cane sugar—*never beet sugar*." The professional candy maker here can get but beet sugar, yet the candy he makes is all right. All common sugar is called (chemically) cane sugar, whether it is from the sugar beet, from the sugar cane, from the maple tree or any other plant or fruits, and is chemically and physically identical.

Refined sugar is today of such high purity that wherever refined cane sugar is used the refined beet sugar may be used with equally good results. The only difference in the refined sugar in the market may be the minute quantities of foreign matter that may still adhere to it from the raw material of which it is obtained and of substances used in the process of extracting and refining; but the quantities are so extremely small that sugar from the beet and the cane when refined are equally healthy for human consumption and for the bees. The yellow unrefined sugar from the sugar cane may be preferable to that from the beet, owing to the more difficult complicated process and the chemicals used. I am not aware that unrefined beet sugar is offered in the retail market.

If refined beet sugar were not good for the bees, the beekeeper here would have found it out because many thousands of pounds have to be fed to the bees annually. It often happens that the bees gather not enough honey during the summer to last them until next spring. We also have in some parts, especially in the Black Forest and the Vosges, honey from a kind of fir tree that is not suitable for wintering in our climate; the same is true of honey from honeydew. These honeys must be extracted and sugar fed instead. If that is not done and the bees cannot take frequent flights (in our climate they cannot do it) they will suffer from dysentery, and lots of colonies die while others are so weakened that they can gather no surplus. Colonies when fed sugar syrup at the right time, so they can feed during the winter on it, come out without loss, *i. e.*, with but few dead bees.

Formerly ultramarine was used to make the refined sugar very white—the housewife used bluing for the same purpose when washing. Such sugar was boiled, and the ultramarine skimmed off. In Germany the ultramarine is not used any longer in the process of sugar refining.

HOW MUCH WATER SHOULD BE USED IN MAKING SYRUP?

On this question authorities have differed ever since sugar has been used for feeding bees. The amount to be used is given from one part of sugar for one part of water to three and one-third parts of sugar for one of water. Some recommend a small amount of tartaric acid, about a teaspoonful for every 10 pounds of sugar; a little vinegar may be used instead. This is to help, or rather invert the sugar. If the syrup is not boiled it won't invert much. Tartaric acid is not found in honey, and I would not recommend it. I never use anything to aid inversion, the bees do the inverting just as well.

An analysis of fed sugar showed that the syrup not capped contained 19.5 percent, while the part capped showed 20.2 percent of water. Just the opposite might have been expected. The open syrup contained 14.9 percent of cane sugar, the capped 11.1 percent. It has been inferred that the inversion is continued in the cell after the syrup is capped.

ALBUMEN IN FED SUGAR SYRUP.

The analysis showed in the uncapped syrup 0.28 percent, in the capped 0.36 percent of nitrogen. Sugar contains no nitrogen, and an analysis of some of the commercial sugars in the market show a purity of 99.8 percent of cane sugar. So this nitrogen is not present as impurity. The inference made is justified by this analysis that the bees supply albumen to the syrup while inverting it. This albumen in the sugar syrup is of so great importance that the experiment should be repeated.

The sugar in nectar in most flowers is principally cane sugar; the bees invert it and eliminate the excess of water. The greater part of water in nectar, I believe, is eliminated by the bee gathering the nectar, on her way home before she deposits the load in the cell.

Nectar contains much water, but varies greatly. As high as 93.76 percent of water has been found. If the bees can eliminate so much water when gathering nectar, we may be sure they can make healthy winter stores from syrup 1:1, providing it is not too cold. On the other hand, if the solution is too concentrated we may doubt the ability of the bees to supply water.

In making syrup for the bees I would rather err by taking too much water than too little, as Saucho Panza said; he preferred to lose the game by having a card too many rather than not having enough. While not admitting ability of the bees to eliminate water readily, we must take into consideration that they do this in the summer in warm weather, out in the field. For best results we should do our feeding for winter stores early in the fall, say in September. The nights should not be very cold, and all surplus combs should be removed. In warm weather the bees can do the work of inverting, eliminating the excess of water and capping the syrup much better than in cool weather, and—what I consider of importance—may gather pollen which may be needed to supply the albumen they add to the syrup while inverting.

From the above cited analysis we may justly infer that to feed large quantities of syrup means, besides, the work of inverting it. Much work shortens their life, a weakening of the body. A weakening of the body means a loss of vitality, less resistance to disease, a tendency to degenerate. Sugar syrup, if fed early enough, makes unquestionably good winter stores, but for brood-rearing it is greatly inferior to honey, because it lacks the nutritive salts, ethereal oils, etc. I use sugar and cold water, equal parts, and try to be done by Sept. 15, but do not feed more than enough to last until early spring. Feeding late in the fall, a little more sugar than water should be taken, but I would never advise to make it more concentrated than two parts of sugar to one of water. At all times it would be good to add honey 10 percent or more, but especially if late feeding has to be done. I would never advise to feed more than two quarts of syrup every evening, or one gallon every other evening. In feeding only half of this amount the bees would consume probably a little more for themselves while doing the work, but they would be sparing their energy and vitality worth a pound or even two of sugar.

Kempsten, Bavaria, Germany.

No. 10.—The Honey-Producing Plants

BY FRANK C. PELLETT.

(*Photographs by the author.*)

IN the April number some of the mints were described, but for lack of suitable pictures some important ones could not at that time be considered.

MOTHERWORT.

The common motherwort, *Leonurus cardiaca*, is a weed introduced from Europe and Northern Asia. It is now quite generally naturalized from Canada to Florida and west to Louisiana. For some reason it is seldom included in lists of honey-plants, although it is said to be an excellent source of nectar. Reports of bees working on this plant very freely in 1914, when most other plants failed to yield anything, were frequent.

The motherwort grows in clumps in waste places in old barn lots, along railroads, in factory grounds, etc. It grows from two to six feet high with small flower clusters in the axils of the leaves. It is a relative of the catnip, and apparently equally as attractive to the bees. This plant was formerly used to some extent in medicine, especially for diseases of women. It is also

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known as lion's tail.

Figure 47 shows the blossoms and leaves, and Fig. 48 a clump of the plants.

GERMANDER OR WOOD SAGE.

The germander, *Teucrium canadense*, also known as wood sage, is found in open woodlands and thickets from Nova Scotia to Nebraska, and south to Florida and Texas. It is common in the central States, and is much sought by the bees. The blooming period is long. This season (1915) the bees have been working on this plant in the writer's wild garden for nearly two months, and at this writing (September) are still visiting it. Apparently the plant does not secrete nectar very freely, yet it is an excellent plant to keep the bees at work when they might otherwise be robbing. The writer does not recall ever having seen a locality where it was sufficiently abundant to amount to very much by itself, though it is a valuable addition to the other honey-producing flora. Figure 49 shows the blossom and leaves which bear some resemblance to catnip.

FIG. 47—MOTHERWORT IN BLOOM

VERVAIN OR VERBENA.

There are about 16 species of verbenas in North America, and several of them are widely distributed. Figure 50 shows the blue vervain, *Verbena hastata*, which is found from Nova Scotia to Quebec and Manitoba, south to Arkansas, New Mexico and California, and on the east south to Georgia. This particular species is usually found in lowlands, along streams, etc. Richter, in his "Honey Plants of California," mentions another species, *Verbena prostrata*, as yielding considerable honey in some localities in that State. In Iowa the hoary vervain, *Verbena stricta*, is very common in upland pastures, especially over the north half of the State, and reports of surplus honey from this source are not uncommon.

Mr. Scholl reports *Verbena xutha* as yielding sparingly in Texas. While in the main the vervains can hardly be regarded as important honey plants, in limited localities some species are very valuable sources of nectar. Mr. S. W. Snyder, secretary of the Iowa Beekeepers' Association, reports the blue vervain as quite valuable in his locality, some years furnishing a surplus.

MILKWEED.

The milkweeds, *Asclepias*, are a large family of plants common to the temperate and tropical regions of many parts of the world. North America alone has 55 recognized species. These plants are also known as butterfly weeds and silkweeds. The blossoms are borne in large ball-shaped clusters as shown in Fig. 51. The seeds are attached to silken parachutes on which they are carried by the wind. It is these silky attachments that give rise to the name "silkweed." Remarkable yields of honey are sometimes reported from milkweeds. An average yield of 100 pounds per colony from this source is occasionally reported through the bee journals.

Much has been written about the entangling of bees in the pollen masses of milkweed. It frequently happens that bees thus entangled are unable to free themselves and die as a result. Some species of milkweed is included in nearly every list of honey plants which the author has consulted. Apparently it may be regarded as of some value almost everywhere. The honey is said to be light in color and of good quality.

DOGBANE (*Apocynum*).

When not in bloom the dogbane resembles the milkweed, and is generally called milkweed. There are several species found in Europe, temperate Asia and North America. In the United States there are two common species,

FIG. 48—CLUMP OF MOTHERWORT IN A BARNYARD

FIG. 49—GERMANDER OR WOODSAGE

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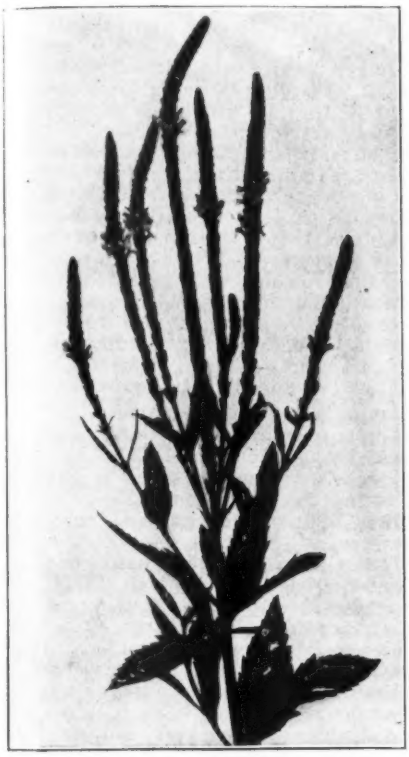

FIG. 50.—BLUE VERVAIN IN BLOOM

FIG. 51.—BLOSSOMS AND LEAVES OF MILKWEED

Apocynum cannabinum, known as Indian hemp, Canadian hemp or choctaw root, and *Apocynum androsæmifolium*, the spreading dogbane.

Dogbane can be distinguished from milkweed by the finer stem and smaller leaves. The stems are usually reddish in color. By Fig. 52 it will be seen that the flowers are very different. At times the bees work on this plant very freely.

Atlantic, Iowa.

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The Meaning of Feeding-Stock Explained

BY G. C. GREINER.

WHEN I described my method of "Doubling the Yield of Surplus Honey" in the American Bee Journal last spring, I tried to make everything sufficiently plain that even the most recent beginner without any previous bee experience could follow the plan without a misstep. In this I was mistaken, judging from the inquiries for full particulars on one point or another, which I have answered personally. Many things considered perfectly plain and simple by the old timer are shrouded with mystery to the less experienced. I will gladly explain to the best of my ability any points of my previous pennings that are not made plain enough to be understood, if requested to do so.

One writer, Rev. M. A. Dinier, wishes to know what I mean by feeding-stock and the necessary quantity to be required.

By feeding-stock I mean the honey fed to the comb-producing colonies after the honey flow, to finish (cap) the sections that were advanced far enough to begin capping, but removed before much of the capping was done. The object of not allowing our bees to do any capping, or at least no more than can be conveniently managed during the honey-flow is twofold. First, it requires much time and labor to do this work; capping is a slow job, which can be done to better advantage later on, when there is "nothing doing." Second, capped honey is the incentive to swarming. As long as we keep open honey, or better, empty combs (bait sections) in the hive, bees are not so liable to contract the swarming fever. But when honey is capped bees consider their job finished and swarming is the result.

If our object is the production of comb honey exclusively, we must run a small percentage of our colonies for extracted honey to produce this, "feeding-stock." It is somewhat different from the ripe, finished honey of the trade, which we might call, to distinguish it from the former, "market stock." I still believe and agree with the majority of our most extensive and experienced producers of extracted honey, that a prime quality, that will stand the test and gain the confidence of the consumer, must be ripened and capped by the bees. But the former is managed in a different way. It is extracted as soon as the combs are heavy with honey, no time being allowed to ripen or thicken, which would lessen its usefulness for the purpose it is intended, the finishing and capping of our sections.

The colonies set aside for this purpose need only one super. The full combs being constanly exchanged for empty ones, give the bees no chance for ripening, much less for capping. When the honey flow is at its best they fill their combs in a surprisingly short time, so that for best results the exchange of combs may be repeated every two or three days. Bees must have close attention at that time. To leave them alone for two or three weeks and expect them to do their best is out of the question.

The quantity of feeding-stock we need is governed by the number of sections we have to be finished and their state of advancement when taken from the hives. I hardly need to say the farther advanced, the less feed it will take to finish them. Every beekeeper must make his own calculation to meet his individual conditions. There is one essential point we must bear in mind. After feeding is once begun, and this should take place before the honey flow has entirely ceased, bees must have feed before them uninterruptedly until the sections are finished. If a break is allowed to occur, the face of the section is liable to be uneven and notched.

Another important point we must remember: Bees do not always act the same in different localities. My management is especially adopted to my surrounding conditions. Even a distance of 10 miles may require some modifications.

La Salle, N. Y.

Rearing Good Queens

BY J. F. ARCHDEKIN.

IN discussing this subject from a breeder's standpoint, there are several things to be considered. In the first place the most pressing obligation is that of making his product

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give satisfaction. Here is the real test as there is considerable misapprehension of the qualities of a queen on the part of the customer. So many do not realize that a queen which has spent several days in the mail will not appear to the best advantage. Should she be introduced during a dearth of honey, she is not apt to display a very prolific disposition. Not all people who order queens are members of beekeepers' associations, nor do they all attend conventions, consequently it is sometimes difficult to impress them with the good qualities of the queen. These are only superficial qualifications and are not any indications of the real worth of the queen.

In the first place, a good queen has a right to be well born and well reared. These are the prime requirements, and every queen has an equal right with human beings in this respect. Being well born means to be reared from strong, healthy stock of good breeding. And to be well reared is to be carefully nurtured during the different stages of her life up to maturity.

Being well born brings up the question of what a good queen is. In the first place I hold that she should be very prolific, and prolificness means strong colonies, and this of course means plenty of honey which is the main object to be attained. The bees from such a queen should be hardy; that is, the colony should winter well. This is very important in the colder parts of our country, as most of us will attest. The bees should also be reasonably gentle. Nearly every one will agree with me in this also. Although there are a good many other points which are desirable, it is pretty hard to combine many of them in the same queen, and so I consider the before-mentioned points the main requirements of a good queen. This will hold good in most any race of bees. Of course, a queen should be well marked and of good color. This is understood. Also she should be fairly good size. I have had small queens that were satisfactory, but always discarded them at the first opportunity.

While the breeding of a queen is very important, it is the rearing which has the greatest influence on the quality of her ladyship. To be well reared means that the cells must be built in strong colonies which are maintained in the most prosperous condition. I begin preparing the cell builders as early in the spring as possible, and aim to have them strong enough to fill two hive-bodies by the first of May. I use the double story system exclusively, and after trying out one or two other systems, I have found it the most satisfactory one for my use. While it may have drawbacks it has advantages over other systems which more than offset these faults. On the other hand, its good points are not to be ignored. The principal advantage to my mind is that of giving the whole lower story to the queen to lay in. Hence, she is not crowded, and brood-rearing goes on under most favorable conditions. The whole colony is together on the same stand in a normal condition, and is much easier to maintain. This cannot be said of many other systems. Sealed combs of brood are shifted from the bottom story to the top one as often as is required, and the young bees are thus hatched right where they are needed to furnish plenty of chyle for the cells. This is the object of all systems, and is more satisfactorily attained by this means than by any other I have seen advocated.

FIG. 52—DOGBANE

For grafting I use the smallest larvæ which it is convenient to handle. By using very small larvæ, they are fed longer before being sealed than is the case when larger larvæ are used, and while they do not hatch as soon after being sealed, still they have a better chance of being long lived and prolific than the others have. In practice I use a queenless colony for accepting the freshly-grafted cells. The grafting is done early in the morning or late in the afternoon. The early morning grafts are allowed to remain in the accepting colony until late afternoon when they are transferred to the cell-building colony. Since adopting this plan I have been able to secure a very large percent of accepted cells, often having all of them accepted.

In order to secure large, well fed cells, it is necessary to have a good flow or to stimulate bees by feeding. During the past summer there was no flow of consequence, and so I was compelled to feed straight through. The cells are caged usually about the 10th or 11th day, as I hatch most of the virgins in captivity. It is preferable to hatch them directly into nuclei, and I do so as much as possible, but circumstances do not always permit it. Also there is some advantage in hatching the cells in cages, as it allows one to sort over the virgins and select the best ones for mating.

For mating the virgins I use the baby nuclei. I find that I can produce as good queens with these little mating boxes as by any other method. While it is inexpensive it produces first-class queens in every respect. They are comparatively easy to manipulate, and one can locate the queens at once, saving much time in caging. One pint of bees is sufficient for each of the boxes, and in a good flow these little colonies will often store considerable surplus, becoming honey bound so that it is necessary to exchange full combs for empty ones. The behavior of these twin nuclei is not as reliable as that of the larger mating nuclei, but if they swarm out, as they will do on the slightest pretext, the loss is not large and is very readily replaced. During the dearth of honey or before the honey-flow, I have found the candy fondant as per the direction in Gleanings in Bee Culture, published a year or so ago, to be very nice for stimulating these mating nuclei. The other colonies are prone to rob out these boxes at the first opportunity, and feeding sugar syrup always causes some muss and aggravates this trouble. Besides, there is no very convenient way of feeding it. Also the fondant being dry does not attract robbers like syrup will. Some kind of feeders adapted to feeding these little colonies is very badly needed.

In introducing the virgins to the mating boxes I use the candy method most exclusively. It is the best reliable method brought out so far. The smoke method is all right in some cases, but I do not recommend it for general use. Soon after the method was given out last year by Mr. Miller, I used it successfully, but this year it wouldn't work at all. There was a world of difference between the conditions last year and this year, and so I

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put most of the blame on the season. However, I think the method has a great future before it when it is developed a little more. I do not think that all of the factors governing its use are known. Until these factors are discovered I feel that the candy method will be the best one for the ordinary person to use.

Big Bend, La.

Progress in Beekeeping in Germany

BY F. GERSTUNG.

BEEKEEPING in Germany has made satisfactory progress both in theory and practice, notwithstanding the unfavorable conditions of weather and of yield, which, during recent years, have diminished the returns of this industry.

The action of the State in establishing institutions for research and instruction, and the organization of theoretical and practical courses in beekeeping, now held regularly every year in almost all the beekeepers' associations in the Empire, have largely contributed to the progress of beekeeping. Thus in Bavaria, which numbers about 50,000 beekeepers, a scientific institution for the study of bees has been founded at the University of Erlangen; here elementary and advanced courses are held on beekeeping, bee diseases, the breeding of queens, etc., under the direction of Prof. Enoch Zander. This institution is under the general supervision of the Professor of Zoology, Dr. Fleischmann.

Every year scientific and practical courses for persons from all the confederated States are held at the Royal Horticultural Institution at Dahlem, Berlin. The scientific instruction is given by Dr. Kustenmacher (for chemistry, botany, etc.). The practical instruction is given by the writer of this paper or by other leading men of German beekeeping.

The director of the Biological Institute of Dahlem, Dr. Maassen, occupies himself especially with the diseases of bees. It is to a great extent due to him that the etiology of foulbrood has been satisfactorily and scientifically explained; on the basis of the results of his investigations a bill has been drawn up on foulbrood and other contagious diseases of bees, which will probably be discussed and approved by the Reichstag in the course of this year.

The Imperial Sanitary office (*Reichsgeundheitsant*) has published a memorandum on the honey trade, in which it warns German beekeepers of the danger that threatens them in the shape of cheap foreign and artificial honey, and communicates the measures adopted by the authorities and the decisions of the law courts for the protection of beekeepers and of the honey-consuming public. Dr. Dustenmacher published in the *Deutsche Bienenzucht in Theorie und Praxis*, year 1910, a series of articles with the object of explaining scientifically "what is honey," upon which the *Reichsgesundheitsant* published a draft of definitions of honey, which contains the preliminaries and bases for a law on the protection of honey demanded for many years past by German beekeepers. In consequence of the improvements in the methods of examining honey, due to the labors of Prof. Haenle, of Strasburg, Dr. Fiehe, of Berlin, Prof. Langer, of Graz, and others, it has become easier to distinguish with certainty between pure and mixed or adulterated honeys and to prove the kind and degree of adulteration.

As for the special questions connected with the study of bees, which during recent years have awakened most interest, we can in this short review only mention the more important.

The discussion as to the notion of the bee colony still continues. The anthropomorphic theory and the so-called organic theory oppose each other. The first considers the colony as a closed family (called also a State) of several individuals united for the purpose of conservation and reproduction, and who, in consequence of their special endowment and intelligence, are capable of adapting themselves suitably to the structure of their State and of finding out and fulfilling the special function which each has to perform.

The other theory, that of the so-called organic point of view, which has been introduced and defended by us, considers the colony as a whole as a living unit, which, according to its wants for the conservation of the species, develops out of itself special organs in the form of different beings which form the colony. The various functions which are indispensable for the preservation of the whole are correspondingly distributed among its members according to their age and sex.

The preservation of the colony is not based on the free choice of functions by each member, which presupposes a certain intelligence in the bees, but by the difference of the physiological structure of the individual members and of the whole colony, caused by the conditions of their life, from which arises the capacity for the necessity of the various forms of activity for the conservation of the whole, to the exclusion of the free choice of functions on the part of the individual. The organic point of view has found decisive scientific support from the recognition that certain organs develop and begin to function only at certain periods, and after having fulfilled their duties disappear again.

It is known that the wax glands do not develop their full functional activity until about eight days after the emergence of the young bees and then retrograde until they cease to act; further, that the young nurse develops to its full perfection a gland which is only found at this stage, but which is necessary for the di estion of pollen, and that this gland gets atrophied as soon as the bee has passed the stage of nurse bee and has become a worker. This shows clearly that the most important functions for the preservation of the colony and of all its members are connected with the various ages and with corresponding physiological states and anatomical transformations. The organic theory recognizes logically a rigorous division of work, which *represents the real basis for all the measures adopted in the practice of beekeeping*. It adapts its methods as possible to the biological laws of the colony, and endeavors to practice systematic beekeeping. The organic theory of the bee colony and its consequences for the theory and practice of beekeeping are treated *in extenso* in the book *Der Bien und seine Zucht*, 4th edition.

The question of *parthenogenesis*, which has been so much debated during the last 60 years is again the subject of lively discussion. The most minute investigation into the eggs of bees has proved that the original opinion of Dr. Dzierzon is still scientifically well founded; according to his theory the male members (drones) issue from unfecundated eggs, while the female members (queens and workers) hatch out from fecundated ones. Dr. Nachtsheim, of Munich, has furnished scientific proof of this, while Prof. Bresslau, of Strasburg, has recognized and described the mechanism of fecundation. Nevertheless, even these new discoveries fail to explain how the queen is capable of fecundating her eggs or not, according to their destination.

On the *origin of the bee pap* which the young larvæ get during the first four days of their development, no unanimity of opinion has been attained in spite of intense investigation. Prof. Zander and others uphold Schiemenz' views, according to which the nutriment proceeds from the glands of the head and thorax of the young nurse bees. Dr. Kustenmacher shares Leuckhart-Schonfeld's opinion, namely, that the chyle stomach produces the bee pap. The latter considers the chyle stomach as the seat of the production of propolis.

It is satisfactory to note that of late years eminent zoological scientists have turned their attention to investigations on bees, and one may hope that before long many obscure points will be cleared up.

Practical beekeeping in Germany has, during the last ten years undergone far-reaching changes. The most striking is the change from the fixed (basket) or skep hives to the movable bar-frame hive, and in the latter from the system of hives having the opening behind to that with the opening above. Quite recently horizontal hives have taken the place of vertical ones, and lastly, large hives are used instead of small ones.

The completely changed conditions of the honey-bearing flowers, which have converted the districts in which formerly the honey was gathered late into early yielding districts, have led to fixed hives falling more and more into disuse and being now almost limited to the heaths. In East Prussia, where formerly only basket hives (Kanitz hive) were common, the so-called mixed system prevails; that is, the Kanitz basket hive is used as brood hive and for winter quarters, while a large lift with movable-bar frames is placed on it for the honey. In this way it is possible to obtain centrifugated honey without destroying the combs. Nevertheless, the new bar-frame hives are continually spreading in East Prussia.

In 1880, at the meeting at Cologne

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uniform dimensions for the bar-frame hives, which are still frequently called Dzierzon or Berlepsch hives, were fixed upon, the so-called *German-Austrian standard* (8.79 inch wide by 7.29 inch high for half frames and 14.58 inch high for whole frames). It soon appeared that these dimensions were not favorable to the development of the colonies. The early collection of the honey demanded a numerous population already in May and June, to be able to utilize completely the season which was often very short. This was not, however, possible with the standard hive, except with much trouble and difficulty, by enlarging the brooding space and similar measures.

At the same time as the insufficiency of the standard measures was recognized, the discovery was made of the laws which govern the making of wax and of the brood-cells, which was to prove of the greatest importance in the construction of hives. With the demand for more space for the development of the colony was added the demand for *space corresponding to the population.* Thus, scientific dimensions were introduced into Germany during the last 20 years, and they have given satisfaction throughout the country. They are the following: 15.75 by 9.84 inches or 155 square inches for the comb without the wooden frame, and nine such combs afford the colony a sufficient brooding space. These dimensions, wherever they have been applied with understanding, have given the best results, and it seems that their substitution for all the others will be only a question of time. It is hardly to be expected that these will ever be replaced by other dimensions, as with them the habitation of the colony is made according to its requirements.

This brood-comb enlargement has been adopted in many systems of hives which formerly used the standard dimensions, as for instance the Berlepsch, the four-storied Liedloff, the Alberti, the German - American and other hives. Most modern hives are built according to these dimensions.

On the introduction of this modern system the influence of America was felt. Almost all the American forms of hives prefer the isolated position of the colonies in the open under a separate protecting roof, which naturally suggested the idea of handling the colony from above. This method at first seemed strange and unusual to German beekeepers, who mostly kept their colonies in bee houses and handled them from the back of the hive. The handling from above and the new dimensions encountered many difficulties, and had to struggle with much prejudice, but with time all hostility has been overcome. When, during the last five years the horizontal hives became the fashion in Germany, the handling from above, which a short time previously was held to be impossible, began to be considered quite natural.

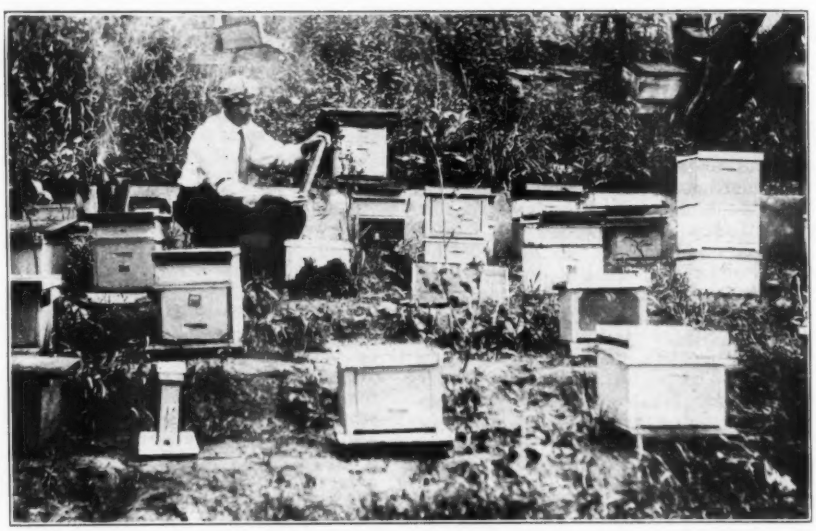
When the systematic dimensions were introduced the vertical hives were preferred, that is, those with high frames. For countries without late honey these hives are even now the best form, as they oblige the colony to provide first of all the necessary store of food for the winter and to deposit it overhead, before bringing the beekeeper's share into the lifts. These hives, by their special build, prevent the pernicious practice of feeding with sugar and causing the degeneration of the bees.

Certain conditions of the honey crop (fir and heather honey, etc.) render it necessary to remove all the honey from the body box or to collect as comb honey all that which cannot be removed by centrifugation. This is not easy with the vertical hive; consequently, by the side of the vertical hives, have been introduced the horizontal ones, in which the modern brood-comb is simply set on its end without altering its dimensions. It is advisable to build the horizontal hives with the frames at right angles to the side which bears the alighting-board and entrance.

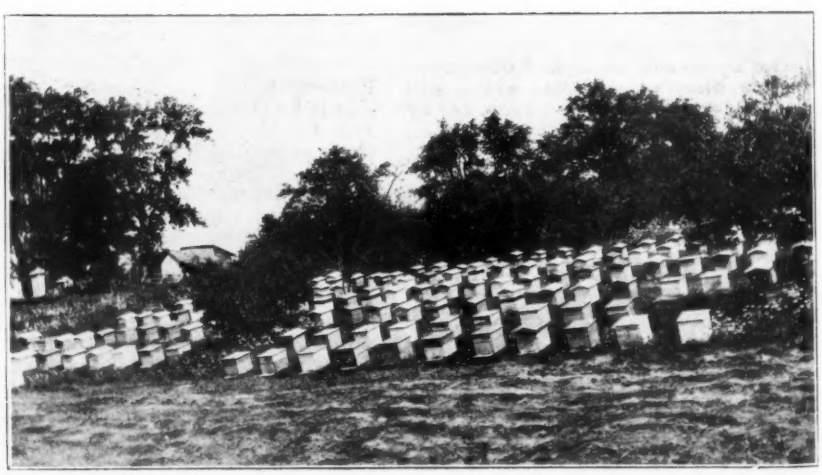
The horizontal hive induces the bees, without any effort on the part of the beekeeper, to deposit all the honey they collect in the lifts, whence it can be easily collected. This can cause the body box to be completely freed from honey when the booty is not heavy and sometimes in very poor years it can even endanger the existence of the colony.

An unforeseen difficulty in the way of adapting beekeeping to the changed conditions in the supply of honey-bearing flowers arose by the introduction made some decades ago of foreign breeds of bees, which hybridized the native bees that were well adapted to their environment, and in most cases spoiled them. It became necessary to breed, by selection, a bee suitable to present conditions. This was no easy task, as it is not possible to select a particular male (drone) for the mating. The impulse to the scientific breeding of queens, from both the theoretical and practical points of view, came from America. Von Stachelhausen worked out several sure methods and introduced them into Germany by his book: *Der Bien und seine Zucht.* The Swiss also, under the leadership of Dr. Kramer, of Zurich, have devoted much care to the breeding of queens, which at present awakens much interest in Germany and is practiced with success.

The recent investigations into the



ASSISTANT INSPECTOR I. E. PYLES IN THE J. R. RILEY APIARY AT BREEDS, ILL.



APIARY OF BAXTER BROS., AT LEAVENWORTH, KANS.
The two sons of E. J. Baxter, President of the Illinois State Beekeepers' Association, located on an 80 acre fruit farm last spring and keep bees in connection

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laws of heredity have yielded new principles and methods in the selection of breeding stock and of breeding, so that at present methods founded on scientific bases can be employed to obtain, by means of selection, the desired qualities.

In conclusion, the following are some statistics concerning bees and honey. On Dec. 1, 1912, the total number of bee-hives in the German Empire was 2,619,891, the highest on record. East Prussia, Wurttemberg and Baden have had the greatest increases. The importation of wax amounted to 2952 tons, worth 409,500 pounds, the exports to 1430 tons, worth 210,500 pounds. Duty was paid in 1912 on 129,360 pounds of honey.

German beekeepers attempted in 1913 to unite all their associations into one in order to defend their interests vigorously, but they have not yet succeeded in the proposed unification.

[America has some cause to be proud of this late progress in German beekeeping. The hive described has frames just a little smaller than those of the Dadant-Blatt hive adopted in Switzerland some 25 years ago. It is evidently a copy of that hive. The contents of the brood-chamber are a trifle less than those of the 10-frame Langstroth hive. The top-opening system is thoroughly American, and in strong contrast with the Berlepsch side-opening system. The next thing needed now is for them to do away with their hybridized native bees by rearing enough of the better races to entirely change the strains, as has been done in many States of America. We have much to learn in science from Europeans, but our people can lead them easily in actual practice.—EDITOR.]

DR. MILLER'S ANSWERS

Send Questions either to the office of the American Bee Journal or direct to
DR. C. C. MILLER, MARENGO, ILL.
He does NOT answer bee-keeping questions by mail.

Stingless and Other Races or Bees—12-Frame Hives

1. What is the stingless bee, and is it as good for honey gathering as the bees that sting?

2. Are all breeds of bees of the same size? If not, which are the largest breeds? What is the main color of the so-called gray Caucasians? Are they gray or black, and are they as good workers as the Italians?

3. What is the difference in 3 band, 5 band, leather colored and golden Italian queens, and will the young bees that come from these queens be of the same color as the queen herself?

4. Would a 12 frame hive be all right to use up here in northern United States? Would the bees swarm as much as they do in 8-frame hives, or would it prevent swarming?
WISCONSIN.

ANSWERS.—1. Stingless bees are of no interest to practical beekeepers, can't live in the North, and are of little value in the tropics.

2. Honey bees are practically the same in size. Caucasians look so much like common black bees that you couldn't tell them apart by their looks. Opinions differ as to their gentleness and storing qualities. While some prefer Caucasians, the majority prefer Italians.

3. When talking about these kinds of bees, the workers and not the queens are considered. A queen that produces 3-banded bees may be quite dark, but a queen that produces 5-banders or goldens, is generally quite yellow, although queens are not by any means always like their workers in color.

4. Some use 12-frame hives with great satisfaction. Although they will not prevent swarming entirely, there will be much less swarming than with 8-frame hives, and with them you should get as much honey.

Spreading American Foulbrood—Other Questions

1. After shaking one or more colonies of bees that had American foulbrood, should the smoker and all tools used be disinfected? If so, how? I put the smoker, gloves, veil, etc., in a jar and poured on them lots of gasoline, then I covered all with many sacks, weighted them down, and left them this way for one week. Do you think this will be sufficient? The gasoline was still strong and would burn vigorously after one week.

2. One of my affected colonies I moved to my home about eight blocks and screened the entrance, the big side was up. I thought they might, in flying out, go back to their old stand, and others might get in some of my other colonies. I put them in a shady place. I brought them home at 10 o'clock a.m., and at 5 p.m. they were all smothered, having clogged up the entrance. Where did I make my mistake? They were shaken on full sheets of foundation and the foundation now has small specks of honey all over it. Is it safe to use this foundation and frames for another colony?

3. The bee inspector was here not long ago and found most of the bees affected with American foulbrood. Now, isn't there much danger of him spreading this disease by the tools he uses, and also with his hands? He did not disinfect his tools in a half day's work.

4. I have hybrid bees, and they are very cross. I am going to buy queens, and thought I would get Caucasians. I run for extracted honey. Do you think I would have much trouble with them swarming?

5 Is there much difference in the Italians, 3-banded, golden or leather colored? If so, which do you prefer?

6. Do you think it safe to use frames (that had American foulbrood) that were boiled for 20 minutes in water with lots of lye in it?

7. The thin super cover you use under your zinc-covered hive cover, does it break easy when being pried off? I thought it being so thin when the propolis gets thick it might not last long.

8. How are extra queens kept during the winter months? IOWA.

ANSWERS.—1. I don't believe gasoline kills the spores, and so I doubt its being an effective disinfectant. A solution of carbolic acid is used by some. Even carbolic acid does not destroy the spores, and I am a little bit doubtful of the need of anything more than soap and water, only so that any remains of the disease may be removed.

2. Evidently it was a mistake to confine the bees so closely after the excitement they had been through. A screen over the top would have been all right. The foundation can be used if all the honey on it be thoroughly washed off.

3. I have much faith in the intelligence and carefulness of Iowa inspectors, and have little doubt that all proper precautions were taken. A tool might be used all day without getting any of the diseased matter upon it, in which case no disinfection would be needed.

4. I don't know. Some Caucasians are reported exceedingly gentle, and some cross, and I suppose there is a difference in their swarming.

5. The 3-banded, leather-colored are generally preferred.

6. Probably there would not be much danger, if any.

7. I use nothing but the regular hive cover over supers, so have no experience.

8. In nuclei, if at all.

Packing for Outdoor Wintering

I winter my bees on summer stands; all my hives are 10 frame, and about one-half double walled. I am thinking of making cases covered with a good quality of roofing to slip down over two or more hives, and then pack the space between hives and case-box with straw. We bale our straw, and as a consequence can get solid straw "cakes" to slip between, then put lid on that will slip down over the top a few inches (3 or 4). The cases will be like a hog crate without any bottom, and covered with roofing. I can have two thicknesses, one on the outside and one inside of the crate, if thought best. They will be light, and can be slipped on over at the beginning of winter and then the cover put on. Do you see any objections to this protection? Should moisture be absorbed by the straw the lids could be taken off days that would dry it, as they will be light to handle. OHIO.

ANSWER.—I would give more for one winter's actual trial than for the guesses of all the experts in the world. And that one winter might be different from succeeding winters. There is some danger that too much protection may be given, so that when a warm day comes the sun may make too slow work in warming up the hive so the bees shall fly.

It is generally considered that the most important part to protect well is the top, and the least protection, if any, on the south side. There surely should be advantage in having more than one hive in the same covering. On the whole, I should expect your plan to be successful.

Queens and Swarms—Put Up Plan

1. I want to tell you of a colony of bees I have which swarmed on May 30, June 30, and July 30. Each time they were treated by the put-up plan. I want to ask what to do with this queen? She has swarmed out three times so far, and has made twice as much surplus in sections than any other colony I have. She is a nice large queen, very prolific, but I don't like this thing of swarming. Would you breed from such a queen? I like her because she has such nice workers, busy all the time, and, as I said, made me more surplus by far than any other colony.

2. I want to tell you how I get my good queens when a colony swarms out. I treat them as I said before by the put-up plan, but I take three frames of young brood from three different hives which are about equal in stores. I then put these frames of brood in an empty hive and then shake very nearly all the bees into this new hive, set the supers on top, then the parent colony on top of all, as you advise in "Fifty Years Among the Bees." In ten days I take these three frames and make three nuclei, one in each compartment. I cut out all cells but one on each frame, and if either is lacking of a nice cell one is cut out and fastened on it with a staple, then a nice frame of brood is added to each and a frame of honey. I think this way of rearing queens is the best, as the cells are built by a colony which under-

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stands cell building, and I get 100 percent queens; at least I have so far. What do you think of this plan of getting good queens?

3. Have you ever had this to occur, treat a swarm on the put-up plan, and after two weeks they swarm out with a young queen and leave the old queen in the hive? I was very much surprised to see this just recently. I found only one cell in the hive, and that one was the one which was hatched and the young queen came forth with the swarm. The hive was full of brood, but no other queen-cell was visible. I treated them by the put-up plan. I found the old queen which was clipped in the parent hive.

INDIANA.

ANSWERS.—1. Generally, after a colony has been treated by the "put-up" plan, there will be no more swarming for the season, but you can never be certain of it. Yet it is a rare thing that a colony swarms a third time, as in your case. Yet I should not be much afraid to breed from such a queen if the colony greatly exceeds other colonies in storing.

2. Your plan of getting queens is good, and is given in "Fifty Years Among the Bees," only I do not take brood from three different colonies. Instead of that I take one or more frames of brood from the best stock. Unless you have three colonies that are equal in worth, your plan will not give as good queens as you will have by taking brood only from the best. You say you destroy all but one cell. That is well in a full colony, but hardly wise in a nucleus. For in the nucleus the bees will take care of the matter themselves, with no thought of swarming, and will be a little more sure then to have the best of the virgins left.

3. For a virgin to go with a swarm, leaving the old queen in the hive, is something that very rarely occurs, but it may happen.

Wants Instruction and Organization of Bee Associations

1. I wonder if it would be possible to have, in this city, some instructors or bee meetings like I read about? We have several beekeepers, the most of them are farmers, but several are here in town; none of them know very much about beekeeping. The most of them catch a swarm and keep it until winter and then kill it to get the honey. What I have reference to is this, is it possible to have some one come here to make a speech on bees and bee culture and then perhaps organize a beekeepers' association?

2. I have a colony in a common store box. How can I transfer them into a regular beehive, and at what time.

3. I see every day in front of one hive some dead bees and white worms and white bees I think they are young bees. What is the trouble? NORFOLK, NEB.

ANSWERS.—1. If you write Frank C. Pellett, of Atlantic, Iowa, he can probably do something toward informing you in the line you desire. He is Iowa's foulbrood inspector, a man of whom Iowa ought to be proud.

2. Probably you will do well to leave the bees where they are until they swarm next year, then hive the swarm in an up-to-date hive, and 21 days later break up the old hive.

3. Likely the work of the bee-moth or waxworm. They are quite troublesome with weak colonies of black bees, but Italians keep them under control. If your bees are mostly of black blood, you will do well to introduce Italian blood.

Miscellaneous Questions

1. How long may I keep queens caged (after they have commenced to lay) without danger of injuring them?

2. Wouldn't it be better to cage them on a comb of unsealed honey, on the push-in-cage method, than in cages with candy?

3. Are not queens reared from the egg better than those reared from the grub?

4. If I brush the bees from my section honey and put it in folding cartons, such as are listed in supply catalogs, right in the bee-yard, will I be bothered with the bee-moth in my honey, and will this not save trouble of fumigating? Of course, this honey will be well sealed before putting in carton.

5. Will I be bothered with brood in sections if I use only starters? I mean without excluders.

6. What make section press and foundation fastener do you use? Do you use thin or extra thin foundation in sections?

7. Why do some queens' wings sit up something on the same order of a worker-bee and some lay flat and smooth to her back? I have noticed those with smooth wings are generally more prolific than their high winged sisters? VIRGINIA.

ANSWERS—1. I don't know. No doubt something depends upon circumstances. If a queen should be caged in a hive among her own bees, so that they can feed her, she would likely endure confinement several times as long as she would if the cage were left out of the hive with candy for the queen to eat. I have often had a queen caged in her hive 10 days or so with no apparent harm, and my guess would be that she might stand it three to five times as long. Caged outside the hive, 10 days might be all or more than she would stand.

2. The way you suggest would be better if the queen be caged in a strange colony; if caged among her own bees there would be no advantage in it. For in that case the bees feed the queen, which is probably better than for her to feed herself.

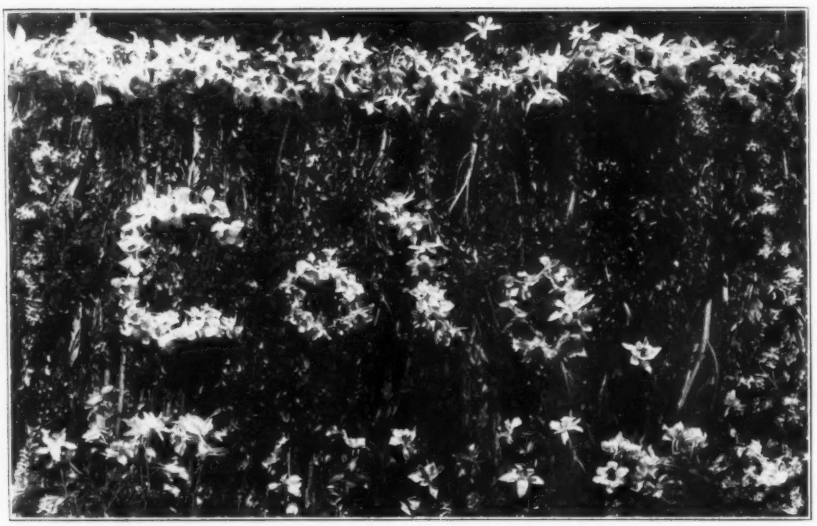
3. I don't believe they are if the grub be young enough. Scientists tell us that during the first three days the food to the queen larva is the same as to the worker larva, only in larger quantity. But it is likely the worker gets all it can eat; so theoretically a queen reared from a worker larva three days old should be as good as one reared from the egg. I think, however, that a larva of less age is better, because when bees have their choice they select one younger; I think not more than perhaps a day and a half old. Such a queen is probably as good as one reared from the egg.

4. No, you can't trust to anything of the kind. Years ago, if I took off sections and kept them where no moth could touch them, within two weeks tiny worms would appear here and there. The only way I could understand it was that the moth must have gotten inside the hive and laid eggs on the sections. Of late years I have no trouble of the kind, probably because of Italian blood.

5. Likely, unless you have more drone-comb than desirable in the brood-chamber. For the bees will build drone-comb in the sections and the queen will lay in them.

6. The Hubbard section-press, the Daisy fastener, and thin super foundation.

7. I don't know. If a queen, when at rest, does not have her wings folded together flat, which very rarely occurs, there is likely some little defect. But that may not hinder her being a good queen to lay.



COLORADO COLUMBINES—Photograph by Gale H. Patterson

Virgin Going With Swarm

I have been considerably puzzled by a case called to my attention in which a party claims that a hive of bees swarmed with a virgin queen, leaving a clipped queen at the head of the colony.

I have been under the impression that the bees or the virgin queen generally kill the old queen on account of her inability to leave with the swarm. COLORADO.

ANSWER.—You are right in your impression as to the bees of the virgin putting out of the way the old queen; at any rate, when a colony with a clipped queen swarms, and the beekeeper does not interfere, you may count upon the old queen turning up missing a week or more after the issuing of the prime swarm, and the colony swarming with the virgin. But I think I have seen reports of rare exceptions. At any rate, it is not impossible that the old queen might be suffered to remain, perhaps both queen and virgin going with the swarm, and then the old queen crawling back into the hive.

A Beginner

I am inexperienced in the bee business but anxious to learn. March 20, 1915, I secured one old-fashioned box hive of bees. They were pretty good hybrids, but did not swarm until June 26, when a fine swarm came out, and as I had secured three 8-frame dovetail hives, I had no trouble to get them to set up housekeeping at once in one of them. They have been strong from the start, and on looking in the hive some two weeks ago I decided they were ready for the super, so I put one on filled with sections and foundation, but they did not seem to take kindly to the upper story. On Aug. 13, this prime swarm sent out a fine big swarm.

Now, will this colony make enough to live on? I gave them full sheets of foundation, and the white clover seems to be at its best, now, has a vigorous growth and sending out lots of bloom also a good show for fall pasture of all kinds? How will a beginner know if they need feeding, and how would you advise to begin? Wait until bloom is all gone? How can I tell how much honey

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they have in hive—some say 25 pounds per colony? MISSOURI.

ANSWER.—Like enough they will gather enough stores for winter, although I should put more faith in fall flowers than in the clover, unless things are different from what they are in my neighborhood, for although there seems plenty of clover in bloom the bees don't seem to get much from it. There are seasons, I don't know why, when clover shows plenty of bloom without yielding nectar, and even in the best seasons clover doesn't seem to be of any use late in the season.

You might weigh the hive and its contents now, and again after the fall flow is over, and if it has gained 25 pounds in weight there is probably enough for winter. That would probably mean a difference of more than 25 pounds in honey, for there is more brood in the hive now than there will be at the later weighing. You can also make a pretty good estimate by inspection. You should find enough honey in the hive, if all put together, to fill full four or five combs, including the pollen that will be present. If the amount falls short, and you have no honey to feed them, then you can feed sugar syrup in the way advised in your bee-book.

Blossoms, But No Honey

This spring I put a super on one of my colonies, and on Aug. 1, it was about two-thirds full. I put another one under the full one. They stopped working in it; why is it. There was a lot of buckwheat in blossom. MICHIGAN.

ANSWER.—I don't suppose the change you made in supers had anything to do with the stopping of storing. It just happened that at the time you gave the second super the flow ceased. Even if much buckwheat bloom was in sight, it may be that it yielded no nectar, which is not a very unusual thing.

Swarms—Afterswarms

1. Will bees work on alfalfa and pea blossoms?
2. How long after a young swarm comes off will it put out a swarm of its own?
3. How late will a swarm come off and put out a swarm that same year?
4. What is the reason that the bees gnaw down the foundation starters in the brood-chamber? I have found two or three starters lying at the bottom of the frames. A few days later I found a strip that they had carried out in front of the hive.
5. If a swarm lights on the grass and you do not happen to see the queen, how would you hive them?
6. Is there any danger of clipping the queen's wing too soon or before she takes her mating flight?
7. Would it strengthen a colony to cut out their first queen-cells and leave the next ones if you wish them to swarm?
8. I thought I saw a few black drones in an Italian colony. Do you think I was right or was I fooled in the kind of bees?
9. It has been cold and rainy this spring. Do you think the bees will have time to make 28 pounds of honey before fall? About how late would they have to start?
10. My bees swarmed May 31. I put on a super that noon, and 11 days later they put off another swarm. What was the matter with them? They have not started to build in the super yet, and the new bees are still bringing in honey in the bottom. What is the reason?
11. Can I put another hive body of the same dimensions, with frames of brood, over the one to strengthen the colony to keep them from swarming, and still go on with comb or extracted honey?

MICHIGAN.

ANSWERS.—1. West of the Mississippi alfalfa is a great honey plant. Farther east bees pay little attention to it. Yet one day this year I saw the bees busy on it. I have never heard of the pea as an important honey plant.

2. Two weeks or more; but generally not at all.

3. I don't know. In a place with a strong flow late enough, I suppose it might be as late as September. But it would be a thing not likely to happen in a hundred years.

4. The starter may have been insufficiently fastened; there may have been something objectionable about the foundation; it may have been that the bees were not gathering, and at such a time they will gnaw foundation as if in pure mischief.

5. Set the hive on the ground with the entrance close to the bees, put a few at the entrance, and let the rest follow.

6. Great danger. If you clip her before mating she will be a drone-layer if she lays at all

7. There might be more bees by such delay in swarming, and that would strengthen either the swarm or the colony.

8. Nothing strange about it. Drones are freebooters, and in prosperous times will be accepted in any colony. So black drones may have come from some other colony. It is also true that pure Italian drones are sometimes very dark when the workers are properly marked.

9. Sure. They might start any time in the fall if there's forage enough after that time.

10. It is the usual thing for bees to send out a second swarm about eight days after the prime swarm, and it may be as much as 16 days later. They may also send out a third, fourth swarm, or more, and even if they send out only one swarm they are not likely soon to do anything in super, if at all.

11. It would interfere with comb honey, but not with extracted.

Why Do Some Swarms Return?

It has occurred three times that bees swarming and settling, even going into hives by themselves, have returned to the old hive, although the queen wasn't clipped. What was the cause? PENNSYLVANIA.

ANSWER.—That might happen with an old queen having defective wings, or possibly too heavy with eggs to fly. It happens more often with a virgin queen when she goes on her wedding flight. For some reason the bees go with her, regular swarm fashion, and then return to the old place.

A Superseding Swarm

On Aug. 13, a small swarm of bees issued and clustered near by. There were hardly enough bees to fill half a gallon can. As the swarm season is over long ago, I took this for a case of supersedure, especially because only a few colonies had swarmed this season. Am I correct? INDIANA.

ANSWER.—You are quite likely correct, the bees have reared a young queen to supersede the old one, and when the young queen takes her mating flight some of the bees swarm out with her.

Tiering—Returning Unfinished Sections

1. How high do you tier up? I am using the Townsend way by putting an extracted comb on each side and sections in the center, and on some hives I use shallow extracting frames filled with comb. I find these were one-half to three-fourths filled with honey by June 16, and have put supers filled with sections under the partly-filled ones.

APIARY OF GALE H. PATTERSON, AT CEDAREDGE, COLO.

2. The weather here has been cool and rainy, giving the bees but little chance to work, still they have stored some honey. There is lots of white clover, and I think it will last from three to four weeks without any rain. With these conditions I think it will turn out all right.

3. If I use Dr. Miller's plan of taking off honey, taking the filled and capped ones, are the unfinished ones returned to the same hive and in place of the ones taken out new sections put on, or do you fill this super with other partly-filled sections taken from another hive?

4. When do you give a newly-hived swarm a super? If given too soon is there any danger of the queen entering it? How much comb honey can I expect from a good swarm hived about June 2, with conditions as given herewith? IOWA.

ANSWERS.—1. In a very poor season there will be no tiering up. In a good season, after the season has fairly advanced, there will be three or four supers on each hive, and from that up to seven or eight. But in the latter case the top and the bottom super will likely be empty or nearly so.

2 Just as soon as the second super is about half filled, with continuing prospects such as you describe I should add a third super at the bottom, and also one on top. Like enough the bees may not enter the upper one, but it serves as a safety valve, and it will be in good shape to put down when the next one is needed below.

3. The unfinished sections from different hives are assembled into one super, and then this super is put back, possibly on a hive from which none of the unfinished ones were taken, no attention being given to

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where the sections came from.

4. Unless excluders are used (and I would not use excluders with sections) a super should not be given for about two days, or until the queen has made a start at laying in the brood-chamber. A swarm hived June 2 may store anywhere from 50 to 150 sections or more, depending upon circumstances, especia ly the season.

Diseased Bees

1. My bees have some disease resembling European foulbrood, but lacking any offensive odor. The new swarms are affected as well as the old colonies, although they are hived on full sheets of foundation—dequeening seems to have no beneficial effect. Would uniting and Italianizing be of any benefit or is it too late in the season? (We generally have a good fall run.) The larvæ dies at all stages, from the freshly-hatched egg to the full sized grub before it is capped over.

2. I also have trouble in rearing queens. If I give them a ripe queen-cell they allow her to hatch, but in two or three days she disappears, or if I give them a breeding comb from my best queen they will start cells but destroy them before she hatches.

MICHIGAN.

ANSWERS.—1. Your first step is to send a sample of the diseased brood to Dr. E. F. Phillips, Department of Agriculture, Washington, D. C. It will cost you nothing to have him decide what the trouble is, and if you write in advance he will send you a box in which to send the sample, with a frank, so that you will not even have to pay postage. You can also ask him for literature telling what to do. If the disease is European foulbrood, and if the colonies are of dark stock and rather weak, then uniting and giving Italian queens would likely be of much service. As already said, the important thing is to send sample to Dr. Phillips.

2. It is only too common a thing for young queens to disappear after they are several days old, perhaps being lost on the wedding trip, and this year, with so much cool and wet weather there has been more than the usual trouble. Without more particulars it is not possible to suggest what you should do to remedy the trouble; indeed, it is not certain that I could tell you what to do if I had fullest particulars, for I have troubles of my own in that way.

If queenless bees kill cells that they have started, they are doing something abnormal, and something quite exceptional. Sometimes it happens that they have something in the way of a queen, which, although it may be of no value, and may not lay, is held in such esteem by the workers that they will suffer nothing else to take its place.

You see I'm not helping you out very much, and it is a good deal like saying to you "Better luck next time."

Pollen in Sections

Will you kindly advise what to do with extracting combs that are filled with pollen? Many of mine are so clogged with pollen that I will be compelled to melt them unless there is some way of getting it out.

WISCONSIN.

ANSWER.—I'm just a bit suspicious that the trouble is not so bad as you suppose, and that if you leave the pollen where it is it will be used up by the bees next year, always supposing it is kept in good condition over winter. It often happens that such pollen is worth more than its weight of honey early in the season. If, however, you want to get the pollen out of the comb some other way than to have the bees eat it out, I'm not sure that I know of any good way. I have known pollen to dry up in the combs so it would shake out.

REPORTS AND EXPERIENCES

Poor Season

We have here a very bad honey season in this province. I have reared and exported some queen-bees; but as you can conceive my work is very much under one-fifth of that of last year.

E. PENNA,
Bologna, Italy

Short Crop

Rather a short honey crop here. I have about two tons from 115 colonies, spring count.

O. B. GRIFFIN.
Caribou, Maine, Aug. 15.

Too Much Rain

Too much rain since July 1 for honey; about one-third of a crop, but bees are strong and hives well filled with honey. If the weather is favorable we ought to get goldenrod honey.

EDGAR RICARD.
Canaan, N. H., Aug. 10.

Poor Season

The present season is a total failure, owing to constant rains during our main honey flow, which is in May and June in this locality. The seasons of 1913 and 1914 have checked the growth of white clover, so that there is little in bloom this season.

Success in beekeeping here is dependent from wild flowers chiefly, and if they fail there is no surplus honey to be expected. We find that sweet clover is an excellent bee plant, but it is hard to establish in this locality because our soils are mostly what may be called *lime hungry*. Some farmers here are starting to grow this plant by the way of experiment. To make it grow on some poor and worn out soils, lime or ashes from burned wood must be mixed into the soil. This insures a growth. Should this plant ever be well established here, it would surely be a blessing to the farmer as well as to the beekeeper.

SUBSCRIBER.

Honey by Parcel Post

I noticed on page 316 of the September American Bee Journal, that Dr. Miller says candied honey can go by parcel post. Why didn't he go a little further and say that liquid honey can go, too?

I am sending liquid honey by parcel post nearly every day. I put it in 5 and 10 pound friction-top pails and then crate (not box) the pails with wood and it goes all right.

I boxed a few pails at first, but soon found that the packages had to be so the postmaster could examine them, and the crates work just as well as the boxes.

Parksville, N. Y., Sept. 15. A. W. SMITH.

Large Increase

I have kept bees for several years, and have made a success of the business so far. My worst trouble has been their tendency to rob during a time of scarcity, but I have less robbing lately because I keep my colonies strong. That is the best preventive any one can use.

The first of August, early in the morning, I noticed the bees were very cross. They were robbing several colonies, and I soon found the colony which was doing the robbing. I painted the entrance of this colony with carbolic acid, and in about two hours used the carbolic acid again. By midday everything was quiet as usual and has been ever since.

We had a very cold, backward spring this year, and bees were very slow building up. Our honey flow began the last of April with the colonies still weak. I was taken sick about that time and was confined to my room about two months. My father took care of the bees, but he didn't know anything about them, so I had to guess at what was going on and tell him what to do. I had him piling on supers, hoping that would keep them from swarming until I could attend to them myself, but they began swarming the last of May, and every colony in my apiary swarmed before I got well. The supers were piled three and four high, and not a pound of finished honey, but the sourwood flow has been good and I have all of my supers finished and capped.

In the wind up I have a hundred colonies of increase and an average of 96 sections of nice marketable honey, which is not so very bad after all.

FRANCIS W. GRAVELY.
Stockton, Va.

Early Frost

The honey harvest has been very unsatisfactory this year. It was rainy and cold through May, June, July and August. We had a hard freeze Aug. 30, but Sept. 1, the bees seemed to find something on the late willow herb, and are doing quite well now.

P. A. SPELLMAN.
Armstrong Creek, Wis.

Good Crop

This has been a good year for bees. My 14 colonies stored over 1200 pounds of extracted clover honey. I did not run for increase. It has been a cold and wet season with plenty of rain.

LOUIS A. SCHAFER.
Fowler, Mich., Aug. 16.

Good Prospects in New Zealand

We had a very mild winter throughout New Zealand. Some of my hives had three frames of brood in July, our mid-winter. At present they are getting all kinds of pollen from dandelions and pine trees.

Eltham, New Zealand, T. J. MANNEX.

The Season in Eastern Canada

The conditions of bee culture in Quebec and the maritime provinces are unfavorable and we will end the season of 1915 with less numerous apiaries than in 1914, and a very light crop of honey.

In my apiary of Millaflora, which may be taken as an average, we cannot count 1915 among the good seasons. It is the first season in 15 or 20 in which the number of colonies has decreased.

Of the 205 colonies which I put in the cellar Nov. 9 last and brought out April 20 (two weeks earlier than common), we had lost 50 by June 20, two months after their removal from confinement. On July 7, we united four weak colonies. Never before did we find it necessary to unite weak colonies after June 15. But the season was so bad that we did not wish to keep colonies covering only three or four combs at that date.

We have had 40 swarms, and our present total is 181 colonies, which will be probably reduced to 160 to 170 by the time of placing them in winter quarters. The total crop has been 850 pounds, or less than 5 pounds per colony.

The clover suffered considerably from drouth in 1914. Then the reduced amount of winter snow and its disappearance in the first week of April left the fields exposed to spring frosts.

However, we so often have good crops of honey that we are not discouraged. The crop in the West is better than in the East. But when the clover crop fails here, the season is a failure for we have neither buckwheat nor fall flowers on which to rely.

JACQUES VERRET.
Charlesbourg, Quebec, July 30.

Excessive Swarming

We have had a fair season, but were troubled with excessive swarming. Our first swarm came April 30, and the last one to date, on Sept. 7. Cool, cloudy wet weather made the harvest slow, but prolonged the

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season and today, Sept. 16, the bees are working on some late white clover. Our principal fall flow has been from the smartweed, and from this the bees have filled their hives for winter and returned a considerable surplus. I had 13 colonies, spring count. They increased to 26. They gave us a little more than 2000 sections of comb honey and about 400 pounds of extracted.

FRANK BECHLY.

Montezuma, Iowa, Sept. 16.

Fair Season

My crop this year was a little better than last year and averaged about 35 pounds of comb honey to the colony and 65 pounds of extracted.

Swarming was worse this year than I have ever seen it. Blossoms of white clover and basswood were thicker than I have ever seen, and if the weather had not been so cold, wet and cloudy we would have had a larger crop than ever before in this State.

Wisconsin, Aug. 24. SUBSCRIBER.

Good Crop

My bees did better this season than they have ever done before, although it has been very wet. They are still working when it is not raining. I have 27 colonies. They have gathered 100 pounds per colony, spring count of 20. This is good for this locality, as it has never been a good bee country. I am trying to dispose of my honey around home.

Gridley, Kan., Sept. 16. F. O. CLAY.

Classified Department

[Advertisements in this department will be inserted at 15 cents per line, with no discounts of any kind. Notices here cannot be less than two lines. If wanted in this department, you must say so when ordering.

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PHELPS' Golden Italian Queens will please you.

BEES AND QUEENS from my New Jersey apiary. J. H. M. Cook,
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GOLDEN all-over Queens. Untested, $1.00. Tested, $3.00. Breeders, $5.00 and $10.
Robert Inghram, Sycamore, Pa.

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QUEENS FROM THE PENN CO. See our large ad. elsewhere in this Journal.

100 fine Italian queens after Sept. 1, 50 cts. each. Tested, 75 cts. P. B. Ramer,
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2302 Agency Road, St. Joseph, Mo.

GOLDEN all-over Queens of Quality. Untested, 75c; tested, $1.50.
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FOR SALE—40 colonies bees in 10-frame hives; mostly Carniolans heavy with stores.
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BEE-KEEPER, let us send our catalog of hives, smokers, foundation, veils, etc. They are nice and cheap. White Mfg. Co.,
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PLACE your order early to insure prompt service. Tested, $1.25; untested, $1.00. Italians and Goldens. John W. Pharr,
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FOR SALE—75 colonies of bees in 8 and 10 frame Standard Dovetailed L. hives. A No. 1 condition. J. F. Turpin, Carrollton, Mo.

QUIRIN'S superior improved queens and bees are northern bred, and are hardy. Orders booked now. Over 20 years a breeder. Free circular. H. G. Quirin, Bellevue, Ohio.

I CAN supply you with Golden or three-banded Italian queens. Tested, $1.00 each; six or more, 85c each; untested, 75c each; six or more, 65c each. Bees, per pound, $1.25. Nuclei per frame, $1.25. Write for prices on large orders. Everything guaranteed'
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Chas. M. Darrow, Star Route, Milo, Mo.

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GOLDEN and 3-banded Italian and Carniolan queens, ready to ship after April 1st. Tested, $1.00; 3 to 6, 95c each; 6 to 12 or more, 90c each. Untested, 75c each; 3 to 6, 70c each; 6 or more, 65c. Bees, per lb., $1.50; Nuclei, per frame, $1.50. C. B. Bankston,
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NOTICE—R. A. Shults will sell Italian queens in the season of 1015. Untested, $1.00. After June 1, 75c; tested, $1.50; select tested, $2.00. Breeders, $5.00. Bred from Moore and Doolittle stock. R. A. Shults.
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American Bee Journal

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[Signed] M. G. DADANT, *Manager*.

Sworn to and subscribed before me this 21st day of September, 1915.

[SEAL.] R. R. WALLACE.
Notary Public.

My Commission expires Sept. 21, 1917

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American Bee Journal

NOW IS THE TIME TO REQUEEN

Now is the time to get ready for next year. If you are just taking off a big crop of honey, your queens will be more or less worn out by their enormous egg production, and will profit by being replaced in many instances.

Possibly you look for a big crop next year. Now is is the time, then, to weed out your poor stock, your black stock, or your older queens. You should have young and vigorous queens to start the season next year.

Under any circumstances, weed out your poor stock.

We are in a position to furnish pure stock, either leather colored, three-band, or golden, as you prefer, in very short order and at reasonable prices, and guartee safe arrival and pure stock.

Our prices for the balance of the season are as follows:

Pure Italian Stock

1	Untested - - - -	$ 1.00
6	" - - - - -	4.50
12	" - - - - -	8.50
25	" - - - - -	16.50

Tested queens, $1.50 each.

Prices on larger lots on application.

AMERICAN BEE JOURNAL

Hamilton, Illinois

TENNESSEE-BRED QUEENS

43 Years' Experience in Queen Rearing—Breed 3-Band Italians Only

	May 1 to June 1			June 1 to July 1			July 1 to Nov. 1		
	1	6	12	1	6	12	1	6	12
Untested	$1.25	$ 6.50	$11 50	$1.00	$ 5.00	$ 9.00	$ .75	$ 4.00	$ .75
Select Untested	1.50	7.50	13 50	1.25	6.50	12.00	1.00	5.00	9.00
Tested	2.00	10.50	18.50	1.75	9.00	17.00	1.50	8 00	15.00
Select Tested	2.75	15.00	27.00	2 50	13.50	25.00	2.00	10.00	18.00

Bees by the pound, 1 lb., $1.25; 2 lb., $2.25; 3 lb., $2.75.
Nuclei (no queen) 1 fr. $1.50; 2 fr., $2.15; 3 fr. $2.75; 4 fr., $3.50; pure 3-band Italians. Select queen wanted, add price.

Capacity of yard, 5000 queens a year—Select queen tested for breeding, $5.00
The very best queen tested for breeding, $10

Queens for export will be carefully packed in long distance cages, but safe delivery is not guaranteed.

JOHN M. DAVIS, SPRING HILL, TENN.

Books for Beekeepers

Address the

AMERICAN BEE JOURNAL
HAMILTON, ILLINOIS

Pearce Method of Beekeeping.—This is an illustrated booklet explaining the keeping of bees in house attics or lofts, whereby any one, either in city or country, is enabled with only a small expenditure of labor to get a lot of honey without coming in contact with the bees. The methods are all fully explained. Price, 50 cents; or with the American Bee Journal one year, both for $1.25.

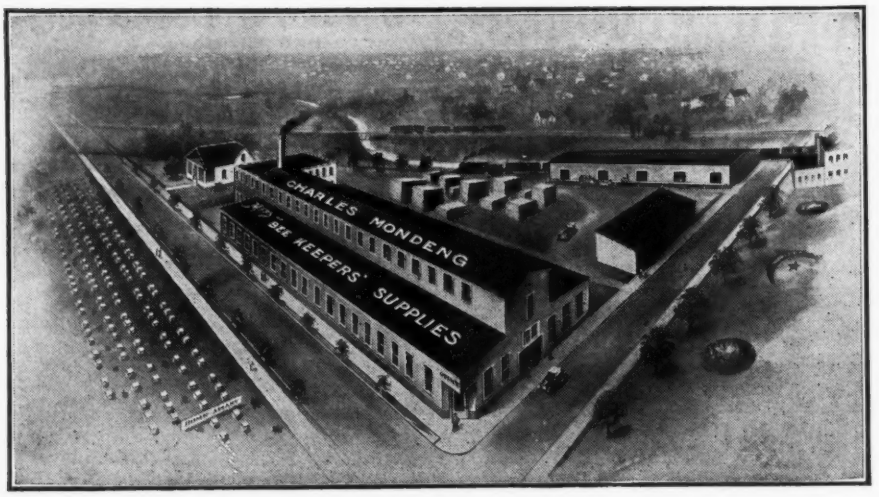
Advanced Bee Culture.—A new edition of this book by the late W. Z. Hutchinson, of Michigan, is a practical and up-to-date bee book for the specialist beekeeper. Its 200 pages touch on subjects pertaining to modern beekeeping, and all are discussed with the authority of an expert. The book has many beautiful illustrations. It is cloth bound, with a cover design in natural colors on its cover. Price, postpaid, $1 00; or with the American Bee Journal one year, both for $1.75

A Year's Work in an Out-Apiary. This is a booklet by G. M. Doolittle, the well known honey producer of New York State. He tells how he secured an average of 111½ pounds of honey per colony in a poor season. It is fully illustrated, and tells in detail just how Mr. Doolittle has won his great success as a honey producer. Price, postpaid, 50 cents; or with the American Bee Journal one year, both for $1.25. Every beekeeper should have a copy of this booklet and study it thoroughly.

Langstroth on the Honey Bee—(Revised by Dadant.) The classic in bee culture. A 575 page cloth bound bee book brought up-to-date. It is an authority, and is used as a text book in many schools and colleges. Finely illustrated and well indexed. It is a book which should be in the hands of every beekeeper, large or small. Chapters are devoted to all important bee subjects from bee-anatomy to diseases and honey production and marketing. Price, postpaid, $1.25, or with American Bee Journal one year, both only $1.75. French edition of this book, price, postpaid, $1.50. Spanish edition, postpaid, $1.85.

Scientific Queen Rearing.—This is practically the only complete book on queen rearing now in print. It is looked upon by many as the foundation of modern methods of rearing queens in a wholesale way. G. M. Doolittle, its author, has an entertaining way of writing on bee subjects which helps his readers to follow him with pleasure even if they never intend to rear queens at all. He describes just how the best queen can be reared in nature's way. Cloth bound, 124 pages, 75 cents, postpaid. There is also a leatherette-bound edition of the same book which retails at 50 cents, or with the American Bee Journal, both for $1.00.

American Bee Journal



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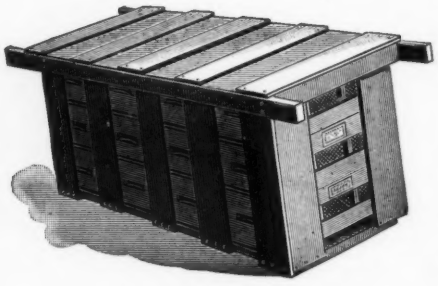

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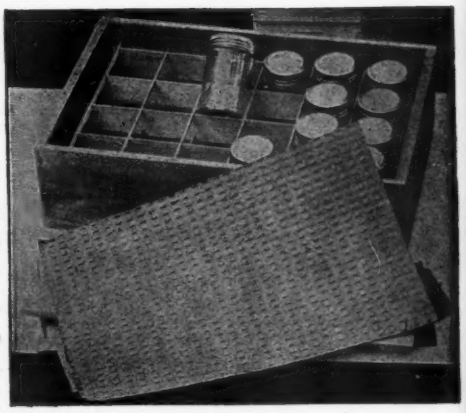

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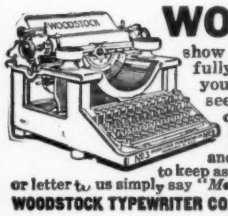

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